

## DESCRIPTION OF PLATE XIX.

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| <p>Fig. 1. <i>Volvaria (Volvarina) pusilla</i>, p. 303.<br/>         2. <i>Macrochlamys minima</i>, p. 303.<br/>         3. — <i>perlucida</i>, p. 303.<br/>         4. <i>Stylodonta (Erepta) rufocincta</i>, p. 303.<br/>         5. — (<i>Erepta</i>) <i>nevilli</i>, p. 304.<br/>         6. <i>Pupa (Pagodella) ventricosa</i>, p. 304.<br/>         7. <i>Gibbus (Gibbulina) nevilli</i>, p. 304.<br/>         8. — (<i>Gonidomus</i>) <i>newtoni</i>, p. 305.<br/>         9. <i>Ennea (Gulella) modesta</i>, p. 305.<br/>         10. <i>Cyclostomus (Tropidophora) mauritianus</i>, p. 305.<br/>         11. — <i>scabr</i>, 306.<br/>         12. <i>Omphalotropis costellata</i>, p. 306.<br/>         13. — <i>picturata</i>, p. 306.<br/>         14. <i>Cassidula parva</i>, p. 306.</p> | <p>Fig. 15. <i>Plecotrema exigua</i>, p. 307.<br/>         16, 16a. <i>Nanina (? Rotula) conulus</i>, p. 307.<br/>         17. <i>Bulimulus (Ena) pusillus</i>, p. 307.<br/>         18. <i>Apicalia scitula</i>, p. 308.<br/>         19. <i>Colina pygmea</i>, p. 308.<br/>         20. <i>Parmella planata</i>, p. 308.<br/>         21. <i>Bulinus (Mesembrinus) gealei</i>, p. 309.<br/>         22. <i>Agadina gouldi</i>, p. 309.<br/>         23. — <i>stimpsoni</i>, p. 309.<br/>         24. <i>Mangelia splendida</i>, p. 309.<br/>         25. <i>Putilla lucida</i>, p. 312.<br/>         26. <i>Fossarina picta</i>, p. 312.<br/>         27. <i>Amathina nobilis</i>, p. 312.<br/>         28. <i>Macrochisma sinensis</i>, p. 312.<br/>         29, 29a. <i>Celopoma japonicum</i>, p. 313.<br/>         30. <i>Terebratula davidsoni</i>, p. 314.</p> |
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March 28, 1867.

George Busk, Esq., F.R.S., V.P., in the Chair.

The Secretary called attention to two fine specimens of *Boidæ* lately added to the Society's collection of living Reptiles, namely:—

1. A specimen of the Carpet-Snake of Australia (*Morelia variegata*, Gray), received from Queensland, purchased of a dealer.

2. A specimen of the Peruvian Boa (*Boa eques*, Eyd. et Soul.), from Guayaquil, presented to the Society by Prof. William Nation, of Lima, Peru, C.M.Z.S.

Mr. Sclater also called attention to the specimen of *Larus fuscescens*, Licht. (*Clupeilarus fuscescens*, Bp. Consp. ii. p. 221), living in the Society's Gardens, having been purchased, when in immature plumage, in 1859, out of a vessel coming from Mogador, and pointed out how very distinct, when seen alive and in full plumage, this bird was from its near allies *Larus fuscus* and *Larus argentatus*. The three species might be diagnosed as follows:—

*L. argentatus*. Major; pedibus pallide carnis: chlamyde cinerea.

*L. fuscescens*. Medius: pedibus læte flavis: chlamyde nigricanti-cinerea.

*L. fuscus*. Minor: pedibus pallide flavis: chlamyde nigricante.

In his recently published 'Musée des Pays-Bas' (*Lari*, p. 15),

Prof. Schlegel had united the two latter species together, which he would hardly have done if he had seen the living birds.

The following papers were read:—

1. Notes on the Mammals and Birds of Cape York, with Description of Two New Rodents of the Genus *Hapalotis*. By GERARD KREFFT, F.L.S., C.M.Z.S.

Some months ago I purchased for the Australian Museum a few Mammals and Birds collected at Cape York, among which were several specimens of a very large *Hapalotis*, for which I propose the name of

#### HAPALOTIS CAUDIMACULATA\*.

Fur harsh and coarse, reddish brown upon the back, and grey on the sides, beneath white. The hair appears stiff and shiny, and consists of some which is grey at the base, white or yellowish white on the upper part, generally tipped with brown, and of much longer and stiffer brown hairs, the tips of which are almost black. Thin silvery hairs cover the feet; and an elongate patch of a darker hue commences at the elbow, runs tapering along the outside of the arm, and stops at the base of the third toe. A similar band is indicated on the hind feet, extending from a little above the heel to the base of the third toe; the marks are caused by the white hair being tipped with brown. The nails are large, very broad at the base, and not very sharp, the animal frequenting rocks more than trees. The first toe is very short, and has a broad blunt round nail. There is a black elongate mark above and below the eye, and on each corner the skin appears destitute of a hairy covering. The whiskers are black, strong, and very long, reaching far beyond the ear, which is of moderate size, flesh-colour, and covered with short hair. The tail is quite nude, and the scales on it, which are large and coarse, do not overlap each other. Various individuals differ in the coloration of the caudal appendage; but in all of them is the apical portion white, but sometimes more or less spotted with black, and the basal part black, and occasionally spotted with white; though generally the tail is about half black and half white, yet there is one specimen in which the black colour covers only one-third of the whole. The measurements of one of the dry skins are as follows:—

	inches.
From tip of nose to base of tail . . . . .	28
Tail . . . . .	13½
Face to base of ear . . . . .	3
Ear . . . . .	1
Fore leg to elbow . . . . .	3
Tarsus and toes . . . . .	2½

\* A subsequent communication from Mr. Krefft points out that this may be the same as Dr. Gray's *Mus macropus* (P. Z. S. 1866, p. 221).—P. L. S.

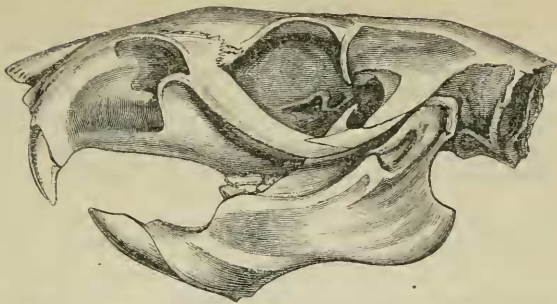


Fig. 1.

Fig. 2.

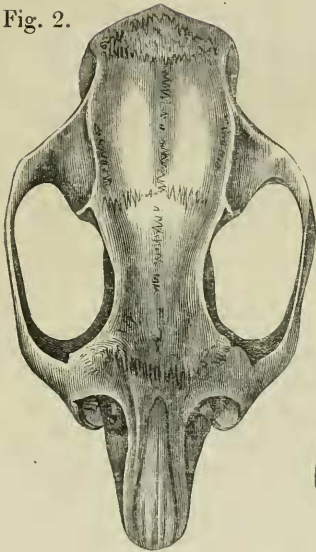


Fig. 3.

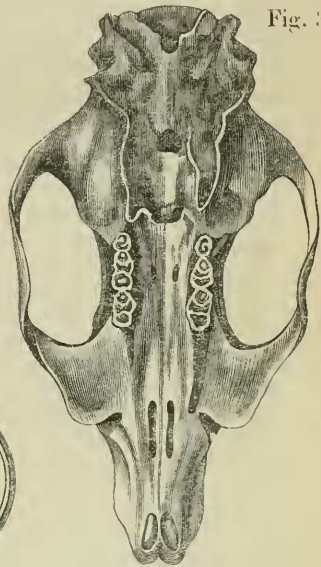


Fig. 4.

Fig. 6.



Fig. 5.

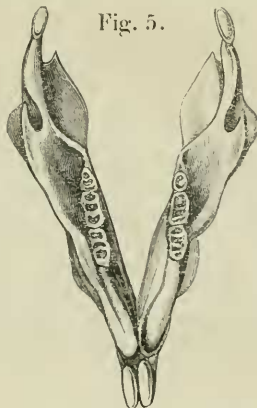


Fig. 7.



Figs. 1, 2, 3. Skull of *Hapalotis caudimaculata*.  
 4. Incisor of ditto, n. s.  
 5. Lower jaw of ditto from above

Fig. 6. Right upper molar series magnified.  
 7. Lower ditto.

The skull of this Rat differs considerably from that of all other species of *Hapalotis* with which I am acquainted. In the small species the brain-cavity is dome-shaped, the parietals expand towards behind, and the occiput is rounded off; the frontals almost form a triangle, and are consequently very narrow between the zygomatic arches. The present large species differs considerably, as will be seen from the accompanying sketches by Miss Harriet Scott's pencil.

The skull (figs. 1, 2, 3, p. 317) is elongate, not very broad, and narrows considerably towards the occiput; the frontals are depressed and smallest in the middle; the parietals, also narrow and depressed, form an oblong square, as long again as broad. The teeth (figs. 4-7, p. 317) (as usual,  $I, \frac{2}{2}$ ,  $M, \frac{3-3}{3-3} = 16$  in number) are of moderate size, the upper incisor forming more than the half of a circle. The molars are much worn in the specimen before me; the first tooth has three, the second two, and the last one fold. In the lower jaw these worn-down tubercles or folds are four, three, and two respectively.

Another, smaller Rat in the collection is probably a young individual. The tail is similarly spotted, the whiskers are long and black, but the fur appears softer and longer. I had no opportunity of examining the skull.

#### HAPALOTIS PERSONATA, sp. nov.

This is also a coarse-haired Rat, similar in colour to the previous species, but distinguished by a black mark from the side of the nose to the eye, which is surrounded by it. The fur beneath is sandy white; and on the sides each hair is mottled with light-brown patches (sometimes in the middle, and occasionally at the tip), giving the fur rather a dirty appearance. The tail is about  $6\frac{1}{2}$  inches long (the body 9 inches), covered with coarse irregular scales, between which a few stiff hairs are visible. The skull resembles that of *Mus hirsutus*. In the upper jaw the first tooth has three tubercles of almost equal size, the second also three (the inner one very small), and the third two (the inner less than half the size of the outer one). The teeth of the lower jaw have four, three, and two tubercles.

A Bat probably referable to the genus *Petalia*, but not so large as *Scotophilus morio*, was found in the collection; and the Australian Museum is in possession of another specimen from Rockhampton. This Bat is tailless, has a pointed muzzle, and is provided with teeth resembling those of the genus *Pteropus*.

I also obtained a single skin of a *Perameles* from the same locality, which differs from *P. nasuta* and *P. obesula*. It has the harsh bristly fur of the latter, is, however, of a much lighter hue, and beneath quite white. It is larger than *P. obesula*, but not so large as *P. nasuta*. The dentition is very perfect and not much worn; but all the skulls of *P. obesula* or *P. nasuta* at my disposal have the teeth so much ground down that comparison is impossible. I consider this species identical with *P. doreyana* of Quoy and Gaim.

The collection of birds contains nothing remarkable, except a *Pitta* not hitherto recorded from Australia—*P. mackloti*, Temm. I may also observe that the northern *Pitta strepitans* is not only a much smaller bird than the southern one, but differs considerably in the markings, and the shape of the bill and feet. The blue spot on the shoulder is comparatively larger, the colour of the head lighter brown, and, whilst the *P. strepitans* of New South Wales has from three to four white spots on the primaries, the northern bird has only two. I wish to draw the attention of ornithologists to these facts, as I have seen only a single specimen of *P. strepitans* from Cape York.

2. Notes on the Birds of Chili. By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.

Messrs. Philippi and Landbeck, of the Museum of Santiago in Chili, have been kind enough to supply me with typical specimens of a certain number of the new species of Chilian birds recently described by them in Wiegmann's 'Archiv für Naturgeschichte,' along with other specimens of birds from that country. It has been of the greatest interest to me to examine these specimens, and to compare them with examples in my own collection and that of Mr. Salvin; and I beg leave to communicate to the Society the following notes on them.

The most recent summary of Chilian ornithology is that given by Dr. Hartlaub in 'Naumannia' for 1853. Dr. Hartlaub has there enumerated the principal sources of our knowledge of the avifauna of this country. As more recent authorities to be consulted on this subject I may add:—

(1) Mr. Cassin's article on the Birds obtained during the U. S. Naval Astronomical Expedition to the Southern Hemisphere, under the command of Lieut. Gilliss, published in the second volume of the Report of that Expedition\*. Washington, 1855.

(2) Herr v. Pelzeln's volume on the Birds of the Novara Expedition. Wien, 1865.

(3) Dr. Philippi and Herr Landbeck's numerous articles in Wiegmann's 'Archiv für Naturgeschichte' †.

\* In relation to this, consult my remarks, P. Z. S. 1856, p. 18.

† The following are the titles of these articles, and the names of the new species of birds described in them:—

(1) "Ueber einige Vögel Chile's, von Dr. R. A. Philippi," Wiegmann's Arch. 1855, p. 9. (*Phœnicopterus andinus*, sp. nov., *Ardea cocoi*, *Xanthornus cayennensis*, *Circus macropterus*.)

(2) "Ueber einige Chilenische Vögel und Fische, von Dr. R. A. Philippi," Wiegmann's Arch. 1857, p. 262. (*Rallus salinasi*, sp. nov., *Upucerthia atacamensis*, sp. nov., *Totanus chilensis*, sp. nov., *Culicivora fernandeziana*, sp. nov.)

(3) "*Pteroptochus albifrons*, sp. nov., von Ludwig Landbeck," Wiegmann's Arch. 1857, p. 273.

The nomenclature used in this paper, unless the contrary is stated, is that of my 'Catalogue of American Birds.'

My friend Mr. Osbert Salvin has gone through the whole of the Columbæ, Grallæ, and Anseres referred to in these notes, along with me, and has brought his series of specimens for comparison. The results arrived at under these heads are, therefore, as much his conclusions as my own.

Fam. TURDIDÆ.

- I have only seen two species of this family undoubtedly from Chili —namely, *Turdus falklandicus* (from Chiloe, teste Darwin, Voy. Beagle, Birds, p. 59; and Valdivia, Hartl. Naum. 1853, p. 212) and *Mimus thenca*. *Turdus fuscater*, Lafr. & D'Orb., is stated by Gay (Hist. de Chile, Zool. i. p. 331) to be one of the "commonest birds in Chili," but Gay's authority is utterly unreliable. Lieut. Gilliss (U. S. Naval Astr. Exp. ii. p. 184) also states it to be "extremely common," but does not say in what locality. Burmeister met with this bird in the neighbourhood of Mendoza; but that is on the other side of the Andes.

(4) "Kurze Beschreibung einer neuen Chilenischen Ralle, von Dr. R. A. Philippi," Wieg. Arch. 1858, p. 83. (*Rallus uliginosus*.)

(5) "Beschreibung neuer Wirbelthiere aus Chile, von Dr. R. A. Philippi," Wieg. Arch. 1858, p. 303. (*Graeculus elegans*.)

(6) "Ueber zwei vermuthlich neue Chilenische Enten und über *Fringilla barbata*, Mol., von Dr. R. A. Philippi," Wieg. Arch. 1860, p. 24. (*Anas ioparica*, sp. nov., *Erismatura vittata*, sp. nov., *Chrysomitris barbata*.)

(7) "Beschreibung zweier neuen Chilenischen Vögel aus den Geschlechtern *Procellaria* und *Caprimulgus*, von Dr. R. A. Philippi und Ludw. Landbeck," Wieg. Arch. 1860, p. 279. (*Caprimulgus andinus*, *Thalassidroma segethi*.)

(8) "Neue Wirbelthiere von Chile, von Dr. R. A. Philippi und Ludw. Landbeck," Wieg. Arch. 1861, p. 289. (*Upucerthia albiventris*, *Larus frobenii*, *Larus cinereo-caudatus*.)

(9) "Ueber die Chilenischen Wasserhühner aus der Gattung *Fulica*, Linn., von Ludw. Landbeck," Wieg. Arch. 1862, p. 215. (*F. chloropoides*, *F. chilensis*, *F. rufifrons*.)

(10) "Beiträge zur Fauna von Peru, von Philippi und Landbeck," Wieg. Arch. 1863, p. 118. (*Synallaxis striata*, *Chlorospiza erythronota*, *Pitylus albociliaris*, *Sterna lorata*, *St. frobenii*, *St. comata*, *Leistes albigipes*, *Recurvirostra andina*, *Dasycephala livida*, *D. maritima*.)

(11) "Ueber die Chilenischen Gänse, von Dr. R. A. Philippi und Landbeck," ibid. p. 184. (*Bernicla melanoptera*, *B. dispar*, *B. chilensis*, *B. antarctica*.)

(12) "Beschreibung einer neuen Ente und einer neuen See-Schwalbe, von Denselben," ibid. p. 202. (*Querquedula angustirostris*, *Sterna atro-fasciata*.)

(13) "Beiträge zur Ornithologie Chile's, von Dr. R. A. Philippi u. Ludw. Landbeck," Wieg. Arch. 1864, p. 41. (*Accipiter chilensis*, *Chlorospiza plumbea*, *Sycaelis aureiventris*.)

(14) "Beiträge zur Ornithologie Chile's, von Luis Landbeck," ibid. 1864, p. 55. (*Dendroica atricapilla*, *Arundinicola citreola*.)

(15) "Beiträge zur Ornithologie von Chile, von Dr. R. A. Philippi u. C. L. Landbeck," ibid. 1865, p. 56. (*Pteroptochos castaneus*, *Certhilauda frobenii*, *C. isabellina*, *Geothamon fasciata*, et *Muscisaxicole*, sp. varia.)

(16) "Beiträge zur Fauna Chiles, von Dr. R. A. Philippi u. L. Landbeck," ibid. 1866, p. 121. (*Pteroptochos castaneus*, *Sterna luctuosa*, *Synallaxis masafueræ*, *Numenius microrhynchus*.)

Meyen (Nova Acta, xvi. Suppl. p. 74) says that *Turdus rufiventris* occurs in Chili. This is, in all probability, an error.

*Turdus subcinereus*, mihi (P. Z. S. 1866, p. 320), is said to be from Chili, on dealers' authority.

#### Fam. TROGLODYTIDÆ.

Of this family I have likewise seen but two representatives from Chili—*Troglodytes magellanicus*, Gould, and *Cistothorus platensis* (Gm.), of both of which Messrs. Philippi and Landbeck have sent me specimens. Of the former, which appears to be scarcely more than a pale variety of the extensively diffused *T. furvus*, Messrs. Philippi and Landbeck's skins are marked *T. platensis*. But on referring to Buffon's 'Planches Enluminees,' 730. fig. 2, upon which Gmelin's name *platensis* was founded, it will be at once apparent that the bird there depicted is the *Cistothorus*. The same error has been committed by Burmeister (Syst. Ueb. iii. p. 137, and La Plata-Reise, ii. p. 476). Burmeister has likewise described the *Cistothorus* as new (Cab. Journ. f. Orn. vii. p. 252), under the name *C. fasciolatus*. Messrs. Philippi and Landbeck's specimens of this bird are marked *Troglodytes hornensis*; and it is certainly the species described by Lesson (L'Inst. 1834, p. 316) under this name, although Gray and Hartlaub have referred Lesson's name to *T. magellanicus*. Hence has arisen continual confusion between these two very different birds. The *Troglodytes magellanicus* is stated to be called "Chercan" in Chili; the *Cistothorus platensis* "Chercan de las Vegas."

#### Fam. MOTACILLIDÆ.

Four specimens of an *Anthus* forwarded by Messrs. Philippi and Landbeck are marked *Anthus correndera*, Vieill., and, as far as I can tell, correctly.

#### Fam. MNIOTILTIDÆ.

Landbeck (Wieg. Arch. 1864, p. 56) describes a *Dendroica atricapilla* from Chili. I agree with Professor Baird (Rev. Am. B. i. p. 193) in being unable to distinguish this supposed species from the North-American *D. striata*; and as this species goes as far south as Bogota (Cf. P. Z. S. 1855, p. 143, and Baird, l. c.), it is quite possible that an individual may occasionally wander onwards to Chili.

#### Fam. HIRUNDINIDÆ.

The only species of Swallow forwarded by Messrs. Philippi and Landbeck is *Hirundo cyanoleuca*, Vieill.—a very wide-ranging species in South America. But *Hirundo meyeri* (*Hirundo leucopyga*, Meyen) also occurs near Valparaiso. I have specimens of it in my collection which I believe to be Chilian.

Professor Baird has lately described a new species of *Progne* (*P. furcata*, Baird, Rev. A. B. p. 278) from "Chili" (auct. Verreaux).

PROC. ZOOL. SOC.—1867, No. XXI.

## Fam. CÆREBIDÆ.

*Diglossa brunneiventris*, Des Murs (Icon. Orn. pl. 43), is stated to be from Chili upon Gay's authority. But Gay's authority is worth very little, and the bird is not mentioned in Gay's 'Fauna Chilena.' Moreover Lafresnaye (Rev. Zool. 1846, p. 318) gives its locality as "Peru," and Cassin (Pr. Acad. Phil. 1864, p. 274) as "Bolivia;" either of which localities are much more likely to be correct.

## Fam. FRINGILLIDÆ.

*Phrygilus gayi*, *P. alaudinus*, and *P. fruticeti* are all well-known Chilean species of the genus *Phrygilus*, which is characteristic of the Chilean and Patagonian region of South America, and extends northwards along the Andes to Bogota. To these we may add *Phrygilus unicolor* (*Emberiza unicolor*, Lafr. et D'Orb. Syn. Av. i. p. 82), of which Messrs. Philippi and Landbeck have forwarded specimens of both sexes, from the Cordillera of Santiago, under the name *Chlorospiza plumbea*\*. These agree with my skins from Bolivia and Ecuador. *Diuca grisea*, nob.† (*Fringilla diuca*, Mol.), is a closely allied Chilean form.

*Zonotrichia pileata* (sive *matutina*), one of the most widely distributed of American Passeres, also occurs in Chili (testibus Meyen, Darwin, &c.).

The only two remaining genera of Fringillidæ which occur in Chili are *Chrysomitris* and *Sycalis*, concerning each of which I must say a few words, as there has been some confusion regarding them.

Of *Chrysomitris*, on which genus Mr. Cassin has lately given us some excellent notes‡, there are two distinct species found in Chili—*C. barbata* (Mol.), and *C. uropygialis*, mihi. The former has been treated of by Dr. Philippi§, and its synonymy partly given. It is not, however, the true *Fringilla campestris* of Spix, although it is the bird so called by Des Murs. Mr. Cassin has lately shown us that it is the *Carduelis stanleyi* of Audubon. The best figure of this species is that given by the latter author in Gilliss's 'Astronomical Expedition,' pl. 17, under the name "*Chrysomitris marginalis*, Bp." An immature skin from the Falklands in my collection, spoken of by Capt. Abbott (Ibis, 1861, p. 154) as *C. magellanica*, and also referred to by me (P. Z. S. 1861, p. 46), appears to belong to this species. It is very common in Chili, according to Dr. Philippi, and is the *Silguero* of the natives.

*C. uropygialis* is a well-marked species of the genus, described in my 'Catalogue of American Birds' (p. 124, note). It is allied to *C. atrata*, but is easily known by its yellow uropygium and upper belly, which in *C. atrata* are deep black—only the lower portion of the belly being yellow in *C. atrata*. Cassin, in Gilliss's 'Expedition'

\* As described by them, 'Arch. f. Nat.' 1864, p. 47.

† Cat. Am. B. p. 111.

‡ Pr. Acad. Phil. 1865, p. 89.

§ Arch. f. Nat. 1860, p. 27.



(ii. p. 181), gives this bird as Chilian under the name *C. atrata*, as he has himself stated (Pr. Acad. Phil. 1865, p. 91); and examples transmitted from Chili by Mr. Leybold of Santiago bear the same name upon them.

Of *Sycalis*, a genus closely allied to the African Canaries (*Cri-thagra*), there are likewise two distinct species found in Chili, of both of which I have received examples from Mr. Landbeck. The larger of these is the *Sycalis aureiventris*, Ph. et Landb. (Arch. f. Nat. 1864, p. 49), allied certainly to *S. luteocephala* (Lafr. et D'Orb.) of Peru and Bolivia, as its describers justly observe, but apparently well distinguished by the want of any yellow edgings to the remiges and rectrices, and not, as far as I am aware, previously described. The second is the *Sycalis arvensis* of my American Catalogue (*Fringilla arvensis*, Kittlitz). The examples of this species forwarded by Messrs. Philippi and Landbeck are labelled "*Cri-thagra brevirostris*, Gould"—a name which apparently belongs to a different species of the same genus.

#### Fam. ICTERIDÆ.

*Agelasticus thilius* (Cab. Mus. Hein. i. p. 188) is a common Chilian bird, and figured in Gay's 'Historia' under two names—*Cacicus chrysocarpus* and *Xanthornus cayennensis*! (Cf. Philippi, Wieg. Arch. 1855, p. 13). The female or young bird is brown striated with black, as in *Agelaus*, from which this form is hardly distinguishable generically.

*Sturnella militaris* and *Curæus aterrimus* are two other well-known species, both belonging to this group. The former is widely diffused over the extreme of South America and the Falkland Islands; the latter I have only seen from Chili.

#### Fam. DENDROCOLAPTIDÆ.

Of the genus *Geositta* I have met with three Chilian species, namely:—

1. *G. cucicularia* (Vieill.); *Certhilanda cucicularia*, Ph. et Landb. (*l. c.* 1865, p. 59). "Found in the provinces of Colchagua, Santiago, and Aconcagua, on the Subandean plains and sea-coast region." The examples of this species forwarded by Messrs. Philippi and Landbeck are quite identical with those previously in my collection, and thus named (*Cat. Am. B.* p. 146).

2. *G. isabellina*; *Certhilanda isabellina*, Ph. et Landb. *l. c.* p. 63. Of this fine species Messrs. Philippi and Landbeck have transmitted me examples of both sexes. It was not previously known to me.

3. *G. fasciata*; *Geobamon fasciata*, Ph. et Landb. *l. c.* p. 68. Messrs. Philippi and Landbeck have likewise sent me two examples of this species, of which I had previously an indifferent specimen in my collection, purchased of Parzudaki in 1854. This I had referred doubtfully (and probably erroneously) to *G. maritima*, Lafr. et D'Orb.; but I shall now adopt the name given by Messrs.

Philippi and Landbeck, at any rate until I have an opportunity of inspecting typical examples of Lafresnaye and D'Orbigny's species.

Messrs. Philippi and Landbeck place this bird in Burmeister's genus *Geobamon*. What this genus may be it is difficult to say from the very short characters given; but the present species seems to me to go very well as a *Geositta*, being hardly distinguishable in any respect except by its straighter and rather stouter beak.

*Certhilanda nigrifasciata*, Lafr. Mag. de Zool. 1836 (not 1863, as given by Messrs. Philippi and Landbeck), which these authors take so much pains to discriminate from the present bird, is nothing more than *C. cunicularia*. The name is dropped altogether by Lafresnaye in the Synopsis of D'Orbigny's birds, published in the 'Magasin de Zoologie' for 1837; but I have seen specimens of *C. cunicularia* marked with it.

*Upucerthia dumetoria* was observed by Mr. Darwin near Coquimbo. I have not seen typical specimens of *U. atacamensis* of Philippi (Reise d. d. Wüste Atacama, p. 162, pl. 3); but it is probably the same as my *Cinclodes bifasciatus* (P. Z. S. 1858, p. 448).

*Ochetorhynchus ruficaudus* is described by Meyen from examples obtained at a height of 10,000 feet, on the Volcano of Maypu, Central Chili\*. It is doubtful whether *Cinclodes* can be maintained as a separate genus from this. Three species of the latter group occur in Chili, namely:—

(1) *C. nigrifumosus* (Lafr. et D'Orb.). Northern Chili, near Coquimbo (*Darwin*).

(2) *C. patachonicus* (Gm.). Chiloe and Central Chili (*Darwin*).

(3) *C. minor*, Cab. et Heine. Araucana (*Heine*).

Of all these three species I have specimens in my collection reputed to be Chilian.

Of Synallaxinæ, the Chilian species are—

*Sylviorthorhynchus desmursi*.

*Oxyurus spinicauda* (Gm.).

*Phleocryptes melanops* (Vieill.).

*Leptasthenura ægithaloides* (Kittl.).

*Synallaxis humicola*, Kittl.

*S. anthoides*, King.

*S. sordida*, Less.

Of the last species I have a skin, received from Leybold of Santiago, marked *S. rufa*, Landbeck, nov. sp. My specimen of the nearly allied *S. modesta*, Eyton, distinguishable by its red throat-spot and the black inner webs of the rectrices, is likewise marked "Chili;" but as the skin was purchased of a dealer, I am not sure of the locality.

Of the typical Dendrocolaptinæ, *Pygarrichus albigularis* (King) of Southern Chili is, as far as I know, the only species that occurs in the country.

\* This species is erroneously inserted in my American Catalogue. I do not possess it, and have never met with authentic examples of it.

## Fam. PTEROPTOCHIDÆ.

This singular group of birds is one of the most characteristic forms of the peculiar avifauna of Chili, nearly one-half of all the known species of the group (some sixteen or seventeen in number) occurring within the republic. The species definitely ascertained to be Chilian are—

1. *Scytalopus magellanicus* (Lath.); G. R. Gray in Zool. Voy. Beagle, iii. p. 74.—*S. fuscus*, Gould; Sclater, C. A. B. p. 168.—*Pteroptochos albifrons*, Landb. Wieg. Arch. 1857, p. 273. This species extends from Southern Chili, throughout Patagonia and the adjacent Chonos archipelago, into the Falkland Islands. Messrs. Philippi and Landbeck's specimens are from Valdivia and Colchagua. The white spot on the head of the adult is described by Mr. Gould, and figured in Sir William Jardine's plates; so that there is no doubt, I think, of Landbeck's *Pt. albifrons* being the same bird as Gould's *S. fuscus*, whatever may be the case as regards *Sylvia magellanica* of Latham, which I adopt as a synonym on Mr. Gray's authority.

2. *Scytalopus fuscoides*, Lafr. Contr. Orn. 1851, p. 149.

Messrs. Philippi and Landbeck send two examples, which I refer to this species, under the name "*Scytalopus obscurus*." They are from the province of Santiago. This species is immediately distinguishable from the preceding by its larger size, lighter, more cinereous colouring, and longer tail. It is more like *S. senilis*, Lafr., of New Granada.

3. *Triptorhynchus paradoxus* (Kittl.); Cab. Orn. Not. p. 219; Bp. Consp. p. 205.

Messrs. Philippi and Landbeck send a fine series of this curious form from Valdivia, under the name "*Scytalopus magellanicus*."

4. *Pteroptochos rubecula*, Kittl. ex Chil. merid.

5. *P. albicollis*, Kittl. ex Chil. centr.

6. *Hylactes megapodius*, Kittl. ex Chil. centr. et bor.

7. *H. tarnii* (King) ex Chil. merid.

These are all four well-known species.

8. *Pteroptochos castaneus*, Phil. et Landb. Wieg. Arch. 1865, pp. 56, 121.

This is a very fine species, most nearly allied to *H. tarnii*, and belonging to the same section (*Hylactes*), with developed hind claw, but quite distinct. I have long had a skin of it in my collection, obtained years ago in Chili by the late Mr. Bridges, and had wrongly referred it to *H. tarnii*\*, which I do not possess. *H. castaneus* is from the province of Colchagua, while *H. tarnii* has a more southern range.

## Fam. TYRANNIDÆ.

## Genus AGRIORNIS.

*A. livida* (Kittl.) and *A. maritima* (Lafr. et D'Orb.) are both well-known Chilian species of this genus. The former is abundant

\* Cf. Cat. A. B. p. 170.

everywhere in Chili\* ; the latter in the Andes, at a height of from 5000 to 10,000 feet.

#### Genus TÆNIOPTERA.

*Tænioptera pyrope* (Kittl.) is the only Chilian bird of this group I am acquainted with. It is found along the coast as far north as Copiapo, but is common in the south (Darwin). It is not a very typical species of the genus ; and Messrs. Cabanis and Heine separate it as *Pyrope kittlitzii* (Mus. Hein. ii. p. 45).

#### Genus MUSCISAXICOLA.

Of this essentially Chilian genus I have lately given a synopsis of all the species known to me in the 'Ibis' †. The fine series now transmitted by Messrs. Philippi and Landbeck does not affect the determinations there arrived at upon the faith of skins received from Herr Leybold. The Chilian species of the genus are the following :—

1. *M. nigrifrons*, Ph. et Landb. Wieg. Arch. 1865, p. 101.
2. *M. cinerea*, Ph. et Landb. l. c. p. 80.
3. *M. mentalis*, Lafr. et D'Orb.

As I have already pointed out (Ibis, 1866, p. 58), *M. macloviana*, of the Falklands, is a larger form of this species.

4. *M. flavinucha*, Lafr. Rev. Zool. 1855, p. 59 = *M. flavivertex*, Ph. et Landb. l. c. p. 98.
5. *M. rubricapilla*, Ph. et Landb. l. c. p. 93.
6. *M. rufivertex*, Lafr. et D'Orb.
7. *M. maculirostris*, Lafr. et D'Orb.

*Octhoëca chilensis*, Hartl. (Naum. 1853, p. 212), has been already ‡ correctly referred to *M. mentalis* (jr. av.), as I learn from a communication from Herr Finsch.

*Centrites niger* (Bodd.), a form allied to *Muscisaxicola*, widely distributed over the southern end of the American continent, occurs, according to Mr. Darwin, as far north as Copiapo. Another isolated type, nearly allied (*Muscigralla brevicauda*), is found on the coast of Peru and Ecuador, and has been stated to occur in Chili also §, but not upon very good authority. The locality of the skin in my collection (1254a, Cat. A. B. p. 206) rests merely on dealers' authority. I believe the specimen to be more probably from Western Peru.

Mr. Landbeck sends me an example of *Arundinicola citreola*, Landb. (Wieg. Arch. 1864, p. 58), which is certainly very closely allied to *Hapalocercus flaviventris* (Lafr. et D'Orb). But my single skin of the latter bird is not in very good condition, and I should be unwilling to unite the two before examining other specimens.

\* Ph. et Landb. Wieg. Arch. 1863, p. 136 et seq.

† Ibis, 1866, p. 56, "Note on the Species of the Genus *Muscisaxicola*." See also for the description of an additional species (*M. fluviatilis*), P. Z. S. 1866, p. 187.

‡ Cat. Am. B. p. 205.

§ Cf. Gay, F. C. Zool. i. p. 338.

*Cyanotis azaræ* (Naum.) (*C. omnicolor*, auct. ex Vieill.) is stated by Gay to be found throughout Chili (*op. cit.* p. 321), although not very abundantly. Lieut. Gilliss also notes its occurrence in Chili\*.

*Serpophaga parvirostris* (Gould) and *Anacretes parulus* (Kittl.) are both unquestionable Chilian species. Of the latter Mr. Salvin has a skin received direct from Herr Leybold of Santiago. I have reputed Chilian specimens of both these species, and have compared those of the former with Mr. Gould's types in the British Museum.

Of the difficult genus *Elainea* but one species, as far as I know, occurs in Chili. This is the bird called "*Elainea albiceps*, D'Orb.," in the 'Zoology of the Voyage of the Beagle' (iii. p. 47), and stated by Mr. Darwin to be "occasionally found near Valparaiso in Central Chile." I have two examples of this species from Chili, one of them received direct from Mr. Leybold; so that there can be no doubt about the locality. They agree quite well with the typical specimens of my *E. griseigularis* from Ecuador†, and are probably of the same species. I am also now of opinion that they can hardly be separated from *E. modesta*, Tsch., although I have kept these two species apart in my American Catalogue (p. 217). But I am doubtful as to whether they have been rightly referred to *E. albiceps* (Lafr. et D'Orb.). The species I have hitherto placed under the latter designation is decidedly distinct, being much larger in size, though generally similar in colouring. The descriptions given of *E. albiceps* would apply nearly equally well to both of these birds; and I therefore propose for the present to retain *modesta* as the name of the Chilian bird, until reference can be made to D'Orbigny's types.

#### Fam. PHYTOTOMIDÆ.

*Phytotoma rara*, the oldest and best-known species of this group, is from Chili; and, according to D'Orbigny, is common in the ravines in the environs of Valparaiso.

#### Order PICARIÆ.

##### Fam. ALCEDINIDÆ.

#### *Ceryle stellata* (Meyen).

It seems to be very doubtful whether this Western-Coast form, which Meyen first separated from *C. torquata*, is really specifically distinct. Mr. G. R. Gray has reunited them (*Zool. Voy. Beagle*, iii. p. 42; and *List of Fissirostres*, p. 61). I have a skin from Cayenne, which appears to be quite as much spotted on the back and wing-coverts as the Chilian bird.

##### Fam. CAPRIMULGIDÆ.

The only Chilian species of this family of which I have seen au-

\* Gilliss's Exp. ii. p. 186.

† P. Z. S. 1858, p. 554, pl. 146. fig. 1.

thentic specimens is *Stenopsis bifasciata* (Gould)\*, of which I have skins sent by Mr. Leybold and Messrs. Philippi and Landbeck. The *Caprimulgus andinus* of the latter gentleman† is, as I have already suggested‡, and can now state positively from the examination of marked specimens received from the describer, merely the young of *S. bifasciata*.

Lesson has described a *Capr. exilis* from "Chili" (Rev. Zool. 1839, p. 45), but it is impossible to say what species he refers to.

#### Fam. TROCHILIDÆ.

The Humming-birds found in Chili are three in number, namely—

*Oreotrochilus leucopleurus*, Gould.

*Patagona gigas* (Vieill.).

*Eustephanus galeritus* (Mol.).

Of these the *Oreotrochilus* belongs to a strictly Andean genus, of which the present bird is the most southern representative. Mr. Bridges describes it as inhabiting a zone of elevation of from 6000 to 8000 feet above the sea-level; but near Hueso Predo Dr. Philippi§ assures us that it descends to 1000 feet above the sea-level. *Patagona gigas*, which is common in Central Chili, ranges as far north as Quito; and *Eustephanus galeritus* southwards to Tierra del Fuego, and northwards to the vicinity of Lima in Peru.

#### Fam. PICIDÆ.

Three Woodpeckers only, as far as I know, have been hitherto recorded as Chilian, namely *Campephilus magellanicus*||, *Picus lignarius*, and *Colaptes pitius*.

#### Fam. PSITTACIDÆ.

Three species of Parrots are likewise certainly correctly assigned to Chili, namely *Henicognathus leptorhynchus*, *Conurus cyanolyseos*, and *C. smaragdineus*:

### Order ACCIPITRES.

#### Fam. VULTURIDÆ.

*Sarcorrhampus gryphus* and *Cathartes aura* are well known to be both abundant in Chile; *C. atratus* is stated by Mr. Cassin (Gilliss's Exp. ii. p. 173) to be "occasionally met with in the interior," though Mr. Darwin says (Zool. Beagle, iii. p. 7) that he never observed it. The bird is certainly common in the vicinity of Mendoza (Darwin, l. c. p. 7), whence, Bridges also states, it sometimes crosses the frontier¶ into the province of Colchagua.

\* Cf. P. Z. S. 1866, p. 140.

† Wieg. Arch. 1860, p. 279.

§ Reise d. die Wüste Atacama, p. 160.

|| Cf. Vigors, P. Z. S. 1841, p. 94.

¶ P. Z. S. 1843, p. 108.

‡ P. Z. S. 1866, p. 140.

## POLYBORINÆ.

Three species of this group are found in Chili, namely *Polyborus tharus*, *Milvago chimango*, and *M. megalopterus* (Meyen). Of the last of these Messrs. Philippi and Landbeck have transmitted adult and young examples from the Cordillera of Santiago, under the name "*Caracara montanus*." But according to Pelzeln (Birds of Novara-Voyage, p. 3) the Chilian *Milvago* of this section is not the same as *Phalcobæus montanus* (Lafr. et D'Orb.), which he imagined to be the Bolivian form of this species, while he has proposed to call the Chilian bird *M. crassirostris*\*. But if the differences between these two forms are allowed to be specific, we must nevertheless adopt for the Chilian bird the name *megalopterus* of Meyen, the bird figured by Meyen (Nov. Act. xvi. Suppl. p. 64, pl. 7) being undoubtedly a young bird of this form, and being stated by that author himself to be from Chili.

## BUTEONINÆ.

Two species of this group seem to be undoubted natives of Chili, namely *Urubitinga uncinata* (Temm.) and *Buteo erythronotus* (King). Whether *Aquila braccata* of Meyen is really different from the latter we are not able to say at present. Herr von Pelzeln registers the two species as distinct (Verh. zool.-bot. Ges. 1862, p. 142).

## AQUILINÆ.

*Geranoæetus melanoleucus* (Vieill.) is found in the retired woody and mountainous parts of Chili (Bridges, P. Z. S. 1843, p. 108), but has also a wide range over the continent, extending as far north as the vicinity of Bogota.

## ACCIPITRINÆ.

*Accipiter chilensis*, lately described by Messrs. Philippi and Landbeck (Wieg. Arch. 1864, p. 43), and stated to be the *only* species of this group known to them in the country (though no less than *five* have been said to occur there), is, in our opinion, an excellent species, allied to *A. cooperi*, although readily distinguishable in the adult dress. There are several examples of it in the British Museum, obtained in Chili by Bridges, and the Magellan Straits by Capt. King. Mr. G. R. Gray has registered these specimens as *A. pileatus*†, from which, however, it is likewise distinct. Messrs. Philippi and Landbeck have transmitted specimens of this bird in the immature plumage to the Norwich Museum. We hope to be able to give a figure of this species in an early number of 'Exotic Ornithology.' Herr von Pelzeln (Novara Voyage, p. 13), having had only young specimens to judge from, has erroneously reunited this bird to *A. cooperi*, to which in immaturity it is certainly very like.

\* Sitz. Akad. Wiss. xlv. p. 9 (1861).

† List of Accipitres, 1848, p. 72.

## FALCONINÆ.

Three true Falcons only appear to occur in Chili, namely *Falco peregrinus*, Linn., *Hypotriorchis femoralis* (Temm.), and *Tinnunculus sparverius*.

*Falco nigriceps*, figured and described by Cassin in Gilliss's 'Expedition' (ii. p. 176, t. 14), seems to have been intended to comprise the Peregrines of Western America, both North and South; but Chilian specimens are not considered by Mr. Gurney to be separable from the European *F. peregrinus*.

## MILVINÆ.

*Elanus leucurus*, Vieill., a wide-ranging species in America, occurs in Chili, as recorded by most writers. Salvin has a specimen received from the vicinity of Santiago.

## CIRCINÆ.

Of this group one species only has been hitherto generally recognized as Chilian, namely *Circus cinereus* (Vieill.), which extends throughout Patagonia into the Falkland Islands, and on the eastern side over La Plata up to Corrientes and the southern parts of Brazil. Philippi (Wieg. Arch. 1855, p. 14) records *Circus macropterus*, Vieill., as also of occasional occurrence there; and more recently Pelzeln (Novara Voyage, pp. 13, 14) mentions two other species as having been obtained in Chili by the naturalists of that expedition, namely *C. poliopterus*, Tsch., and *C. megaspilus*, Gould. The former of these is doubtless a good species; but the latter, as figured by Gray (Genera, pl. 11), is probably a young bird, and is referred by Schlegel (Musée des P.-B., *Circi*) to the young of *C. poliopterus*.

## Order COLUMBÆ.

The following are the recognized species of this order inhabiting Chili:—

(1) *Columba araucana*, Less.; G. R. Gray, List of Columbæ in B. M. p. 33.

(2) *C. meridionalis*, King; Bp. Consp. ii. p. 52.

(3) *Zenaida auriculata* (Gay); Bp. Consp. ii. p. 82.

(4) *Melopelia meloda* (Tschudi).

This species, which is stated by Gay\* and Bonaparte† to have been met with in Chili during the voyage of the 'Bonite,' is not included in the zoology of that voyage; but Herr Landbeck informs me, in a letter, that he has lately obtained an undoubtedly Chilian specimen of it.

(5) *Metriopelia melanoptera* (Gm.); Bp. Consp. ii. p. 75.

(6) *Columba strepitans* (Spix); Pelzeln, Novara-Reise, Aves, p. 109.

\* *Z. souleyetiana*, Gay, F. Ch. Aves, p. 380.

† Consp. ii. p. 81.



## Order GALLINÆ.

Tinamous are the only representatives of the Gallinaceous order in Chili, and of these *Rhynchotus perdicarius* (Kittl.), which is said to be common all over the republic, is the only Chilean species I am acquainted with. Gay describes a second species (*Nothura punctulata*), which seems to be closely allied; and in the British Museum is a specimen from Coquimbo belonging to a third species, which is referred by Mr. Gray to *Nothura cinerascens*, Burm. But I consider that these two last species require *confirmation*.

## Order GRALLÆ.

## Fam. THINOCORIDÆ.

*Thinocorus rumicivorus*, Eschsch.

*T. orbignyana*, Geoffr. et Less.

*Attagis gayi*, Less.

Chilian specimens of all these three birds are in Messrs. Salvin and Godman's collection. *Thinocorus swainsoni* of Lesson appears to be only the male of *T. rumicivorus*. Von Pelzeln (Novara-Reise, Aves, p. 113) also gives *T. ingæ*, Tsch., as Chilean—a species I am not acquainted with.

## Fam. CHARADRIIDÆ.

The Chilean species of this family are:—

*Vanellus cayanensis* (Gm.).

*Charadrius virginicus*, Borkh.

*Eudromias modesta* (Licht.).

*Ægialites nivosus*, Cassin.

It appears to be this species which is spoken of by Darwin (Zool. Voy. Beagle, iii. p. 127) under the name *Hiaticula azaræ* from Chili. Schlegel unites this species to the European *Æ. cantianus*; but, as far as I can tell from examination of skins in Mr. Salvin's collection, the two species are distinct, although no doubt closely allied.

*Ægialites falklandicus* (Lath.).

*Oreophilus ruficollis* (Wagl.).

*Aphriza virgata* (Gm.)\*.

*Leptosceles mitchelli* (Fraser).

## Fam. HÆMATOPODIDÆ.

The Black Oyster-catcher of South America should be called *Hæmatopus ater*, Vieill., as I have already pointed out (P. Z. S. 1860, p. 386), *niger* having been applied by Pallas to the species from the Northern Pacific. Prof. Schlegel considers the South African *niger* (of Gray) identical with the South American species, which may very likely be the case.

\* Mus. Brit. ex Chili (*Bridges*), Gray, Cat. Gall. &c., p. 72.

## Fam. SCOLOPACIDÆ.

The South American Phalarope has been regarded as specifically distinct by some authors, and is the *Lobipes antarcticus*, Less., and *Steganopus tricolor*, Vieill. (ex Azara). But Fraser (P. Z. S. 1843, p. 118) and Pelzeln (Novara-Reise, Aves, p. 132) concur in identifying it with the northern bird, which Mr. Salvin has already traced south as far as Guatemala. Schlegel also unites the two birds without hesitation.

*Gallinago paraguaiæ* (Vieill.).

Schlegel unites *Scolopax magellanica*, King, with this species, of which he has Chilean specimens received from the Santiago Museum.

*Gallinago paludosa* (Gm.).

Schlegel unites Hartlaub's *Scolopax spectabilis* from Valdivia (Naum. 1853, p. 216) with this species.

*Tringa bairdi*, Coues.

Mr. Salvin has received three skins of this bird from Herr Leybold of Santiago. They are all of immature birds, but appear to agree with other specimens from New Granada, Panama, Mexico, and North America. This is probably the bird referred to by Cassin as *Tringa pectoralis*, Gilliss's Exp. ii. p. 195.

*Tringa bonapartii*, Schlegel.

This is the species usually called *Tringa* or *Schœniclus schinzii*, and so named in the British Museum 'Catalogue of Grallæ, &c.,' p. 105. Mr. Bridges obtained specimens of it in Chili; and there are examples of it in the Leyden Museum, sent by Prof. Philippi from near Santiago (see Schlegel's Musée d. P.-B. *Scolopaces*, p. 42).

*Gambetta melanoleuca* (Gm.).

This widely diffused American species has already been recognized as occurring in Chili (Cf. Gray, Cat. Gall., &c., p. 99, & Schlegel, Mus. d. P.-B. *Scolopaces*, p. 69; Hartlaub, Naum. 1853, p. 222). A specimen of it, received by Mr. Salvin from Leybold, is marked *Totanus chilensis*, and is doubtless the species so described by Philippi (Wieg. Arch. 1857, p. 264).

*Gambetta flavipes* (Vieill.).

Gay's *Totanus stagnatilis* may probably be intended for this species, of which Salvin has a specimen received from Leybold of Santiago; and Dr. Segetho obtained examples in Chili during the Novara Expedition\*. Mr. Salvin has likewise Brazilian specimens of this species, collected by Natterer; and Darwin records its occurrence at Monte Video (Zool. Voy. Beagle, iii. p. 129).

*Limosa hudsonica* (Lath.).

Chili (Bridges, P. Z. S. 1843, p. 118).

\* Cf. Pelzeln, Orn. Nov. Exp. p. 151.

*Numenius hudsonicus* (Lath.).

Mr. Salvin has a Chilian specimen of this bird, received from Herr Leybold. Darwin says it is common on the mud-banks of Chiloe (Voy. Beagle, iii. p. 129).

*Numenius borealis*, Forst.

We have little doubt that *N. microrhynchus* of Philippi (Wieg. Arch. 1866, p. 129) is referable to this species, which, under its synonym of *N. brevirostris*, Temm., is already known to occur at Buenos Ayres (Darw. Voy. Beagle, iii. p. 129).

## Fam. RALLIDÆ.

*RALLUS SANGUINOLENTUS*, Sw. An. in Men. p. 335; Darwin, Zool. Beagle, iii. p. 133.

*Rallus caesi*us, Tsch. F. P. Aves, p. 301; Schlegel, Mus. d. P.-B. Ralli, p. 8.

*R. bicolor*, Gay, F. C. Aves, p. 434.

*R. ricordi*, Bp. (teste Schlegelio).

Of this Rail, which appears to be peculiar to Chili, Mr. Salvin has a skin received from Leybold. Dr. Schlegel appears to have quite overlooked Swainson's description of it, and his accurate distinction of it from the nearly allied *R. nigricans* of Eastern South America.

*RALLUS ANTARTICUS*, King, Zool. Journ. iv. p. 95.

*Rallus rufopennis*, G. R. Gray, MS.

*R. uliginosus*, Phil. Wieg. Arch. 1858, p. 83.

A skin of this species in Salvin's collection was received by Mr. Gould from Dr. Philippi along with some Humming-birds. It was not marked as belonging to the species described as *R. uliginosus*, but appears to agree with the characters given *l. c.*

*Porzana jamaicensis* (Gm.).

Three skins of a Crane, received by Mr. Salvin from Dr. Philippi through Mr. Gould, do not differ appreciably from northern specimens of this species, of which I have also a specimen from the intermediate locality of Lima, transmitted to me by Prof. Nation.

*HYDROCICCA MELANOPS* (Vieill.).

*Rallus melanops*, Vieill. (ex Azara, 373).—*Gallinula crassirostris*, J. E. Gray; Bridges, P. Z. S. 1843, p. 118.

Mr. Salvin has an example of this bird received from Leybold of Santiago.

Three species of *Fulica* inhabit the fresh waters of Chili, and are fully described by Herr Landbeck (Wieg. Arch. 1862, p. 214) under the names *F. chloropoides*, *F. chilensis*, and *F. rufifrons*. Unfortunately Landbeck was not acquainted with Dr. Hartlaub's excellent article on *Fulica* in the extra heft of Cabanis's 'Journal f. Orn.' for 1853, and has consequently misnamed them all. According to Hartlaub *F. rufifrons*, Landbeck, is *F. leucopyga*, Licht., which is

confirmed by Schlegel (Mus. d. P.-B. *Ralli*, p. 64), having marked examples for comparison. Landbeck's *F. chilensis* is, according to Hartlaub, *F. armillata*, Vieill., and his *F. chloropoides*=*F. stricklandi*, Hartlaub. But Schlegel makes *F. stricklandi* the young of *F. chilensis*, Gay!

#### Fam. ARDEIDÆ.

Five species of this family have been recorded as Chilian, namely:—(1) *Ardea cocoi* (Linn.); (2) *Nycticorax obscurus*, Licht. (Bp. Consp. ii. p. 141), hitherto usually confounded with *N. gardeni*; two White Egrets, namely (3) *Ardea candidissima* (Gm.) and (4) *A. egretta* (Gm.) (*leuce*, Licht.); and (5) *Ardetta exilis* (Gm.). By some authorities the last-named species is held to be distinct from the North American form, and called *A. erythromelas* (Bp. Consp. ii. p. 134). I have had no opportunity of comparing specimens.

#### Fam. CICONIIDÆ.

*Ciconia maguari* (Gm.). An interesting note on the nidification of this bird is given by Bridges (P. Z. S. 1843, p. 116).

#### Fam. PLATALEIDÆ.

The American forms of *Ibis falcinellus* (Linn.), usually called *I. ordi* and *I. guarana*, are stated by Schlegel to be inseparable from the European *I. falcinellus*.

#### Fam. PHENICOPTERIDÆ.

*Phenicopterus igni-palliatu*s, Geoffr. et D'Orb.—*P. chilensis*, Bridges, P. Z. S. 1843, p. 117. Abundant in the freshwater lakes of Chili.

*Phenicopterus andinus*, Philippi, Ann. Univ. Chili, 1864, p. 337; Wieg. Arch. 1855, p. 10; Reise d. die Wüste Atacama, p. 164, Zool. t. 4 et 5; Cassin, Gilliss's Exp. ii. p. 198. This species inhabits the cordilleras of Copiapo in Northern Chili, according to its discoverer, but does not go further south. Northwards it appears to have been observed by Bollaert near Tarapaca in Bolivia.

#### Fam. ANATIDÆ.

Two species of Swan occur in South America, *Cygnus nigricollis* and *C. coscoroba* (Mol.). Lieut. Gilliss tells us that the former is abundant in most of the small mountain-lakes of Chili.

Messrs. Philippi and Landbeck have given excellent notices of the four species of Geese found in Chili, in 'Wiegman's Archiv,' 1863 (p. 185 *et seq.*), but have wrongly identified some of them. They should stand as follows:—

- (1) *Bernicla melanoptera* (Eyton); Ph. et Landb. *l. c.* p. 185.
- (2) *Bernicla antarctica* (Gm.); Ph. et Landb. *l. c.* p. 199.
- (3) *Chloephaga dispar* (Ph. et Landb.).—*Bernicla magellanica*, Cassin (nec Gm.),—*B. dispar*, Ph. et Landb. *l. c.* p. 190.

(4) *Chloephaga poliocephala*, Gray, MS.; Sclater, P. Z. S. 1857, p. 128; 1858, p. 290.—*Bernicla chiloensis*, Ph. et Land. l. c. p. 195.

I have already given full notes on these species of Geese in some remarks on Messrs. Philippi and Landbeck's paper on this subject in the 'Ibis' for 1864 (pp. 121, 122), and need not repeat them now.

The well-authenticated Chilian Freshwater Ducks are about twelve in number, namely:—

1. *Mareca chiloensis* (King).

2. *Anas iopareia*, Philippi, Wieg. Arch. 1860, p. 24. I have not yet seen examples of this species.

3. *Anas specularis*, King.

4. *Anas melanocephala*, Vieill.; Cassin in Gilliss's Exp. ii. p. 202, t. 25.

Mr. Salvin has specimens of both sexes of this species, received from Herr Leybold. The male is well figured by Cassin l. c. The female has the throat white, the occiput blackish, and the sides of the head marbled with brown.

5. *Anas cristata* (Gm.); Gray, List of Anseres, p. 136 = *A. pyrrhogaster*, Meyen.

6. *Querquedula torquata* (Vieill.).

This species is not included by Gay in his work; but there are specimens in the Paris Museum, labelled "Chili (Gay)."

7. *Querquedula cyanoptera* (Vieill.).

8. *Q. versicolor* (Vieill.).

9. *Q. creccoides* (King).

*Querquedula angustirostris*, Phil. et Landb., Wieg. Arch. 1863, p. 202, from Peru, would appear to be *Q. flavirostris* (Vieill.) (the true *Anas oxyptera* of Meyen), which is not the same as *Q. creccoides*. According to Hartlaub (Naum. 1853, p. 217) *Q. flavirostris* also occurs in Chili; but there is some confusion between these two species, which I am not able to rectify for want of specimens.

10. *Dafila bahamensis*, Linn.

11. *Dafila oxyura* (Meyen).—*Anas oxyura*, Meyen; Cassin, Gilliss's Exp. ii. p. 202; Burm. La Plata, Reise, ii. p. 515.

Considered by Burmeister to be separable from, although nearly allied to, the eastern *A. spinicauda*, Vieill.

12. *Spatula platalea* (Vieill.) = *Rhynchaspis maculata*, Jard. & Selb.

Of the group of Fuligininæ only one species seems to have been recorded as common in Chili, *Fuligula peposaca* (Vieill.) (*Anas metopias*, Pöppig); but *Micropterus cinereus* also occurs in the southern provinces (Pelzeln, Novara-Reise, Aves, p. 139).

*Erismatra ferruginea*, Eyton, is the only Chilian species of this genus I have met with. It inhabits the freshwater lakes of Central Chili, according to Gay. Philippi's *E. vittata* (Wieg. Arch. 1860,

p. 26) seems to be only the young of this species, as far as I can make it out.

#### Fam. PELECANIDÆ.

Schlegel unites *Pelecanus thagus* sive *molinae* with *P. fuscus*, and also indicates *Pelecanus philippensis* as occurring in Chili! (Mus. de P.-B. *Pelecani*, pp. 28, 35). In the former identification I believe he is wrong. In the latter also I think there *must* be an error. The question is, are there two species of Pelican found in Chili? If so, the second is *more likely* to be *P. trachyrhynchus*.

Dr. Hartlaub gives five species of Cormorants as occurring in Chili. But *P. gracilis* seems, according to Bonaparte (Consp. ii. p. 173), to be scarcely separable from *P. brazilianus*; and *P. albigula*, Brandt, is *P. bougainvillii*, Lesson. On the other hand we may add *P. cirrhatus* and *P. purpurascens*, Brandt, if Bonaparte's localities (Consp. ii. pp. 174, 177) are to be trusted; and there will thus remain still five Chilian species, besides *Graculus elegans* of Philippi (Wieg. Arch. 1850, p. 303), which may possibly be the same as one of the former.

*Sula variegata* of Tschudi, which was referred by Bonaparte, doubtfully, to *S. cyanops*, is recognized by Pelzeln (Novara-Reise, Aves, p. 157) as a distinct species; but is this view correct?

#### Fam. PROCELLARIIDÆ.

Messrs. Philippi and Landbeck's *Thalassidroma segethi* (Wieg. Arch. 1860, p. 282) seems to be identical with *Thalassidroma gracilis*, Elliot (Ibis, 1859, p. 391), which name has the priority. *Procellaria oceanica*, Kuhl, and *P. melanogastra*, Gould, are also given by Schlegel as having been obtained on the coast of Chili by D'Orbigny. *Puffinus carneipes*, Gould, and *Thalassoica glacialioides* (Smith) are also Chilian, on the same authority. I follow Dr. Schlegel also in referring the *Halodroma* of the western coast of South America to *H. garnoti*.

#### Fam. LARIDÆ.

*Larus kittlitzii* of Bruch is founded on a figure of a bird obtained on the Chilian coast by Kittlitz, and may probably be the same as *Larus franklini*, which was obtained by Burnett and Fitzroy at Valparaiso, and has been recently redescribed by Messrs. Philippi and Landbeck as *Larus cinereocaudatus* (Wieg. Arch. 1861, p. 293). So we may strike *L. kittlitzii* out of Dr. Hartlaub's list, and in lieu thereof put in *Larus modestus*, Tsch. (*L. bridgesi*, Fraser), obtained by Bridges at Valparaiso. *Larus scoresbii*, Trail (*hæmatorhynchus*, King), occurs in Southern Chili.

The only Terns which I can identify positively as occurring on the Chilian coast are:—(1) *Sterna cassini*, nobis (P. Z. S. 1860, p. 391, = *S. antarctica*, Peale, nec Less., nec Forst. = *S. meridionalis*, Cassin, nec Brehm), allied to our *S. hirundo* and *S. macrura*; (2) a small species, named in the British Museum "*Sterna exilis*, Tsch.,"

which I have also lately received a skin from Lima\*; (3) *Anous inca* (*Sterna inca*, Less.); and (4) *Hydrochelidon fissipes*, Linn., spoken of by Pelzeln (Novara-Reise, p. 155) as *H. plumbea*. I do not know *Sterna atro-fasciata*, Ph. et Landb., Wieg. Arch. 1863, p. 204, nor *S. luctuosa*, *ibid.* 1866, p. 126.

#### Fam. PODICIPIDÆ.

Dr. Hartlaub, in describing *Podilymbus antarcticus* (*Podiceps antarcticus*, Less.) in his article in 'Naumannia,' does not appear to be aware that it is the same as *P. brevirostris* of Gray's 'Genera.' The error appears to have occurred from it not being stated on the plate in the 'Genera' that the figure of *P. brevirostris* is reduced in size.

The typical specimens of *P. brevirostris* were obtained in Chili by Mr. Bridges. I cannot find any difference between them and specimens of a *Podilymbus* collected on the lake of Atitlan in Guatemala by Mr. Salvin; so that it would appear that this species ranges all along the Andes into Central America.

#### Fam. SPHENISCIDÆ.

The only Penguin that I know of occurring on the Chilian coast is *Spheniscus humboldtii*, Meyen, which ranges as far north as Peru, and, according to Meyen, is common in the harbour of Callao.

I conclude these notes with a nominal list of what I believe to be the authentically determined species of Chilian birds, amounting in all to 209, namely—

I. Passeres	63
II. Picariæ	11
III. Accipitres	24
IV. Columbæ	6
V. Gallinæ	3
VI. Grallæ	47
VII. Anseres	55
	<u>209</u>

#### I. PASSERES.

1. <i>Turdus falklandicus</i> .	7. <i>Hirundo cyanoleuca</i> .
2. <i>Mimus thenca</i> .	8. — <i>meyeni</i> .
3. <i>Troglodytes magellanicus</i> .	9. <i>Progne furcata</i> .
4. <i>Cistothorus platensis</i> .	10. <i>Phrygilus gayi</i> .
5. <i>Anthus correndera</i> .	11. — <i>alaudinus</i> .
6. <i>Dendroeca atricapilla</i> .	12. — <i>fruticeti</i> .
	13. — <i>unicolor</i> .
	14. <i>Diuca grisea</i> .
	15. <i>Zonotrichia pileata</i> .

\* See below, p. 344.

- |   |                                      |
|---|--------------------------------------|
| + 16. <i>Chrysomitris uropygialis.</i>  | 40. <i>Scytalopus fuscoides.</i>     |
| + 17. — <i>barbata.</i>                 | 41. <i>Triptorhynchus paradoxus.</i> |
| 18. <i>Sycalis aureiventris.</i>        | 42. <i>Pteroptochus rubecula.</i>    |
| 19. — <i>arvensis.</i>                  | 43. — <i>albicollis.</i>             |
|   | 44. <i>Hylactes megapodius.</i>      |
| 20. <i>Agelasticus thilius.</i>         | 45. — <i>tarnii.</i>                 |
| 21. <i>Curæus aterrimus.</i>            | 46. — <i>castaneus.</i>              |
| 22. <i>Sturnella militaris.</i>         |                                      |
|   | 47. <i>Agriornis livida.</i>         |
| 23. <i>Geositta cunicularia.</i>        | 48. — <i>maritima.</i>               |
| 24. — <i>isabellina.</i>                | 49. <i>Tænioptera pyrope.</i>        |
| 25. — <i>fasciata.</i>                  | 50. <i>Muscisaxicola nigrifrons.</i> |
| 26. <i>Upucerthia dumetoria.</i>        | 51. — <i>cinerea.</i>                |
| 27. <i>Ochetorhynchus ruficaudus.</i>   | 52. — <i>mentalis.</i>               |
| 28. <i>Cinclodes nigrofumosus.</i>      | 53. — <i>flavinucha.</i>             |
| 29. — <i>patachonicus.</i>              | 54. — <i>rufivertex.</i>             |
| 30. — <i>minor.</i>                     | 55. — <i>rubricapilla.</i>           |
| 31. <i>Sylviorthorhynchus desmursi.</i> | 56. — <i>maculirostris.</i>          |
| 32. <i>Oxyurus spinicauda.</i>          | 57. <i>Centrites niger.</i>          |
| 33. <i>Phleocryptes melanops.</i>       | 58. <i>Hapalocercus citreolus.</i>   |
| 34. <i>Leptasthenura ægithaloides.</i>  | 59. <i>Cyanotis azaræ.</i>           |
| 35. <i>Synallaxis humicola.</i>         | 60. <i>Serpophaga parvirostris.</i>  |
| 36. — <i>anthoides.</i>                 | 61. <i>Auaretetes parulus.</i>       |
| 37. — <i>sordida.</i>                   | 62. <i>Elainia modesta.</i>          |
| 38. <i>Pygarrhicus albogularis.</i>     |                                      |
|   | 63. <i>Phytotouu rara.</i>           |
| 39. <i>Scytalopus magellanicus.</i>     |                                      |

## II. PICARIÆ.

- |                                       |  |
|---------------------------------------|--|
| 1. <i>Ceryle stellata.</i>            | 6. <i>Campephilus magellanicus.</i>    |
|                                       | 7. <i>Picus lignarius.</i>             |
| 2. <i>Stenopsis bifasciata.</i>       | 8. <i>Colaptes pitius.</i>             |
|                                       |  |
| 3. <i>Oreotrochilus leucopleurus.</i> | 9. <i>Henicognathus leptorhynchus.</i> |
| 4. <i>Patagonia gigas.</i>            | 10. <i>Conurus cyanolyseos.</i>        |
| 5. <i>Eustephanus galeritus.</i>      | 11. — <i>smuragdineus.</i>             |

## III. ACCIPITRES.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1. <i>Sarcorhamphus gryphus.</i>    | 10. <i>Accipiter chilensis.</i>     |
| 2. <i>Cathartes aura.</i>           | 11. <i>Hypotriorchis femoralis.</i> |
| 3. — <i>atratus.</i>                | 12. <i>Tinnunculus sparverius.</i>  |
|                                     | 13. <i>Falco peregrinus.</i>        |
| 4. <i>Polyborus tharus.</i>         | 14. <i>Elanus leucurus.</i>         |
| 5. <i>Milvago chimango.</i>         | 15. <i>Circus cinereus.</i>         |
| 6. — <i>megalopterus.</i>           | 16. — <i>macropterus.</i>           |
| 7. <i>Urubitinga uncinata.</i>      | 17. — <i>poliopterus.</i>           |
| 8. <i>Buteo erythronotus.</i>       |                                     |
| 9. <i>Geranoœetus melanoleucus.</i> | 18. <i>Glucidium nanum.</i>         |



- |                                 |                               |
|---------------------------------|-------------------------------|
| 19. <i>Athene cunicularia</i> . | 22. <i>Bubo virginianus</i> . |
| 20. <i>Syrnium hylophilum</i> . | 23. — <i>crassirostris</i> .  |
| 21. <i>Otus brachyotus</i> .    | 24. <i>Strix perlata</i> .    |

## IV. COLUMBÆ.

- |                                |                                     |
|--------------------------------|-------------------------------------|
| 1. <i>Columba araucana</i> .   | 4. <i>Melopelia meloda</i> .        |
| 2. — <i>meridionalis</i> .     | 5. <i>Metriopelia melanoptera</i> . |
| 3. <i>Zenaida auriculata</i> . | 6. <i>Columbula strepitans</i> .    |

## V. GALLINÆ.

- |                                    |                                    |
|------------------------------------|------------------------------------|
| 1. <i>Rhynchotus perdicarius</i> . | 3. <i>Rhynchotus cinerascens</i> . |
| 2. — <i>punctulatus</i> .          |                                    |

## VI. GRALLÆ.

- |                                     |   |
|-------------------------------------|---|
| 1. <i>Thinocorus rumicivorus</i> .  | 26. <i>Limosa hudsonica</i> .             |
| 2. — <i>orbignianus</i> .           | 27. <i>Numenius hudsonicus</i> .          |
| 3. — <i>ingæ</i> .                  | 28. — <i>borealis</i> .                   |
| 4. <i>Attagus gayi</i> .            |   |
| 5. <i>Vanellus cayanensis</i> .     | 29. <i>Rallus sanguinolentus</i> .        |
| 6. <i>Charadrius virginicus</i> .   | 30. — <i>antarcticus</i> .                |
| 7. <i>Eudromias modesta</i> .       | 31. <i>Porzana jamaicensis</i> .          |
| 8. <i>Ægialites nivosus</i> .       | 32. <i>Hydroicca melanops</i> .           |
| 9. — <i>falklandicus</i> .          | 33. <i>Gallinula galeata</i> .            |
| 10. <i>Oreophilus ruficollis</i> .  | 34. <i>Fulica leucopyga</i> .             |
| 11. <i>Aphriza virgata</i> .        | 35. — <i>armillata</i> .                  |
| 12. <i>Leptosceles mitchelli</i> .  | 36. — <i>stricklandi</i> .                |
|                                     | 37. <i>Ardea cocoi</i> .                  |
| 13. <i>Strepsilas interpres</i> .   | 38. <i>Nycticorax obscurus</i> .          |
| 14. <i>Hæmatopus palliatus</i> .    | 39. <i>Ardea candidissima</i> .           |
| 15. — <i>ater</i> .                 | 40. — <i>egretta</i> .                    |
|                                     | 41. <i>Ardetta exilis</i> .               |
| 16. <i>Himantopus nigricollis</i> . |   |
| 17. <i>Phalaropus wilsoni</i> .     | 42. <i>Ciconia maguari</i> .              |
| 18. <i>Gallinago paraguaiæ</i> .    |   |
| 19. — <i>paludosa</i> .             | 43. <i>Platalea ajaja</i> .               |
| 20. <i>Rhynchæa semicollaris</i> .  | 44. <i>Ibis melanopsis</i> .              |
| 21. <i>Tringa bairdi</i> .          | 45. — <i>fulcinellus</i> .                |
| 22. — <i>bonapartii</i> .           |   |
| 23. <i>Calidris arenaria</i> .      | 46. <i>Phœnicopterus igni-palliatus</i> . |
| 24. <i>Gambetta melanoleuca</i> .   | 47. — <i>andinus</i> .                    |
| 25. — <i>flavipes</i> .             |   |

## VII. ANSERES.

- |                                  |                                |
|----------------------------------|--------------------------------|
| 1. <i>Cygnus nigricollis</i> .   | 5. <i>Chloephaga dispar</i> .  |
| 2. — <i>coscoroba</i> .          | 6. — <i>poliocephala</i> .     |
| 3. <i>Bernicla melanoptera</i> . | 7. <i>Sarcidiornis regia</i> . |
| 4. — <i>antarctica</i> .         | 8. <i>Mareca chilensis</i> .   |

- |                                     |  |
|-------------------------------------|--|
| 9. <i>Anas iopareia</i> .           | 33. <i>Procellaria melanogastra</i> .  |
| 10. — <i>specularis</i> .           | 34. <i>Puffinus carneipes</i> .        |
| 11. — <i>melanocephala</i> .        | 35. <i>Thalassoica glacialioides</i> . |
| 12. — <i>cristata</i> .             | 36. <i>Halodroma garnoti</i> .         |
| 13. <i>Querquedula torquata</i> .   |  |
| 14. — <i>cyanoptera</i> .           | 37. <i>Larus belcheri</i> .            |
| 15. — <i>versicolor</i> .           | 38. — <i>dominicanus</i> .             |
| 16. — <i>creccoides</i> .           | 39. — <i>franklinii</i> .              |
| 17. <i>Dafila bahamensis</i> .      | 40. — <i>glaucotis</i> .               |
| 18. — <i>oxyura</i> .               | 41. — <i>modestus</i> .                |
| 19. <i>Spatula platulea</i> .       | 42. — <i>scoresbii</i> .               |
| 20. <i>Fuligula peposaca</i> .      | 43. <i>Sterna cassini</i> .            |
| 21. <i>Micropterus cinereus</i> .   | 44. — <i>exilis</i> .                  |
| 22. <i>Erismatura ferruginea</i> .  | 45. — <i>atrofasciata</i> .            |
| 23. <i>Merganetta armata</i> .      | 46. — <i>luctuosa</i> .                |
|                                     | 47. <i>Hydrochelidon fissipes</i> .    |
| 24. <i>Pelecanus thugus</i> .       | 48. <i>Anous inca</i> .                |
| 25. <i>Phalacrocorax gaimardi</i> . | 49. <i>Rhynchops nigra</i> .           |
| 26. — <i>brazilianus</i> .          |  |
| 27. — <i>cirrhatu</i> s.            | 50. <i>Podiceps calipareus</i> .       |
| 28. — <i>bougainvillii</i> .        | 51. — <i>rollandi</i> .                |
| 29. — <i>purpurascens</i> .         | 52. — <i>leucopterus</i> .             |
| 30. <i>Sula variegata</i> .         | 53. — <i>chilensis</i> .               |
|                                     | 54. <i>Podilymbus antarcticus</i> .    |
| 31. <i>Procellaria gracilis</i> .   |  |
| 32. — <i>occunica</i> .             | 55. <i>Spheniscus humboldti</i> .      |

3. On the Birds of the Vicinity of Lima, Peru. By P. L. SCLATER, M.A., Ph.D., F.R.S. &c. With Notes on their Habits; by Professor W. NATION, of Lima, C.M.Z.S. (Part II.)\*

(Plates XX. & XXI.)

A second small collection of birds received from Prof. Nation contains examples of the following twelve species, several of which are of great interest. I have added to my remarks on each bird Prof. Nation's notes on its habits:—

1. GEOTHLYPIS ÆQUINOCTIALIS (Gm.); Sclater, C. A. B. p. 27.

One example agreeing with specimens from Cayenne and Trinidad. "Found amongst weeds, in company with *Cyanotis omnicolor* and *Troglodytes furrus*. It is rare. I have only obtained two specimens."—W. N.

- 2. HIRUNDO ERYTHROGASTRA, Bodd.; Scl. C. A. B. p. 39.

"Very rare in Lima. I have only seen it twice in ten years, but

\* Continued from P. Z. S. 1866, p. 100.

have ascertained that it is common in the warm valleys of the Andes, about forty miles away, and builds its nests in corners against the walls, like our familiar species in England. Ten years ago I met with a flock near here in a field of *alfalfa* (lucerne), and was fortunate enough to kill the one I sent you. Last New-year's day, in the same field, I saw a flock of about two hundred, and killed four, three males and a female."—W. N.

### 3. TANAGRA DARWINI, Bp.

"I have now one of these beautiful birds alive. It will not eat seeds of any kind, only fruit."—W. N.

### 4. SPERMOPHILA TELASCO (Less.); Bp. Consp. p. 496.

I have previously seen specimens of this scarce species only in the Museums of Paris and Philadelphia.

"I have hitherto thought that this bird left us in winter, but have recently discovered that its plumage is then so different as to have led me to take it for another bird. The female lays two eggs, of a bluish green."—W. N.

### — 5. POOSPIZA BONAPARTII. (Pl. XX. ♂ et ♀.)

*Poospiza dominicensis*, Bp. Consp. i. p. 473 (?).

*Supra cinerea, interscapulio brunnescente lavato; capitis lateribus nigris, superciliis elongatis albis: alis fusco-nigris, primariis et tectricibus albo, secundariis fulvo marginatis: cauda fusco-nigra, reetricum lateralium omnium pogoniis internis fere omnino albis: subtus alba, torque gutturali nigro, lateribus cinerascens, crisso medio rufescente: tectricibus subalaribus et remigum marginibus internis albis: rostro et pedibus pallide corneis: long. tota 5 poll. Angl., alæ 2·5, caudæ 1·9, rostri a rictu 0·6, tarsi 0·8.*

*Fœm. Supra fusca, nigricante substriata; alis caudaque nigro-fuscis, brunneo marginatis; superciliis elongatis, sordide albis: subtus fulvescenti-albida, lateraliter cinereo flammulata, torque nigro vix apparente.*

*Hab.* in Peruvia occident. prope Lima (*Nation*).

*Obs.* Similis *P. torquata* (D'Orb. et Lafr.) sed crisso rufo vix tincto et rostro crassiore longiore et ad basin carneo distinguenda.

This is a very distinct species of the genus *Poospiza*, quite unknown to me, though it may possibly be identical with the bird described in Bonaparte's 'Conspectus' as *P. dominicensis*. If this be the case, however, the locality assigned is quite erroneous, and I propose to give the bird a new specific name.

*P. bonapartii* is most nearly allied to *P. torquata*, as I have pointed out above, having a similar black breast-band, which is almost obsolete in the female bird.

"Resident with us a few weeks every year, and usually met with in company with *Zonotrichie* and *Spermophili* &c."—W. N.

## 6. SYCALIS LUTEIVENTRIS (Meyen).

Prof. Nation's specimen of this species agrees best with a skin collected by Fraser at Cuenca in Ecuador, which I have hitherto referred (Cat. A. B. p. 126) to *S. arvensis* of Chili. Chilian examples, however, are certainly rather larger in size, and not so bright in colouring, so that it may be necessary to separate the northern form. In this case the latter may take the name *luteiventris* of Meyen\*, which is founded on Peruvian specimens.

"This bird does not reside with us all the year round, but breeds here. I have one in a cage, and never heard any South-American bird sing so sweetly."—W. N.

† 7. EUPSILOSTOMA PUSILLUM, Sclater, P. Z. S. 1860, pp. 68, 283, et Cat. A. B. p. 215.

These skins agree very well with the types described *l. c.*, which were collected by Fraser at Pallatanga and Babahoyo.

"This little bird is quite new to me. It is so small and so secluded in its habits as to have hitherto escaped my notice. I have lately found its nest, and, knowing its haunts, shall soon get a clue to its habits."—W. N.

## 8. TYRANNUS MELANCHOLICUS, Vieill.

Agrees with the northern form called *satrapa* by Cabanis and Heine, and in my 'American Catalogue.'

"Very rare in Lima. I found four birds on a dry branch of a tree overhanging a mud wall, in which Mason-wasps (*Pelopæus flavipes*) were making their nest. By the aid of a glass I observed that every time a *Pelopæus* passed the Tyrants captured it, and returned to the branch to eat it. I obtained two specimens."—W. N.

† 9. ANTROSTOMUS ÆQUICAUDATUS (Peale).

*Caprimulgus æquicaudatus*, Peale, Zool. Expl. Exp. Birds, p. 168.

"*Stenopsis parvulus*, Gould," Cassin, *ib.* ed. 2. p. 188.

"Near Lima, and probably all along the Peruvian coast, we have only the present species of *Caprimulgus*. Its favourite haunts are dry stony places, where there is little or no vegetation, and no water near. In such spots the colour of the earth harmonizes with the plumage of the bird, so that even a hawk cannot see it at a few yards distance. Nestled on the shady side of a stone or clot of dry earth to protect it from the scorching sun, it must be almost trodden upon before it takes to wing, and flies noiselessly to a few yards distance, where it settles again on the ground without outspread wings. If repeatedly disturbed it will fly to a greater distance, but returns to its old haunts when alarm has subsided.

"The female makes no nest, but lays one egg, of a bluish grey marbled with brown, on the ground. Having observed that our European species will remove its egg if touched, I was curious to see whether this Goatsucker would do likewise. On finding, therefore,

\* Nov. Act. xvi. Suppl. pl. 12. f. 3.

an old bird sitting, I moved the egg on more than one occasion, but never found the old bird carry away the egg. If the young bird is moved it is sometimes taken away by the old birds. Last year, upon one occasion, I found a young bird, and brought it home to draw. Having finished, I took it back to the same spot and waited to see whether the old bird would find it again. In about half an hour, the low plaintive cry of the young bird brought the old one, who carried it away to a distance of about 200 yards."—W. N.

In my notes on the American *Caprimulgidæ*, published in the last volume of the Society's 'Proceedings',\* I remarked that I much doubted whether Mr. Cassin had correctly united *C. æquicaudatus*, Peale, with *C. parvulus*, Gould. The specimen now sent me by Prof. Nation proves that my suspicions were correct. There can be little doubt that the present species is the same as that discovered by Peale, as it agrees tolerably well with his figure and description, and is also from the same locality, where also Prof. Nation tells us it is the only species that occurs. It is, however, certainly distinct from the true *Antrostomus parvulus* of Brazil and La Plata, having a longer and more compressed bill, being much more sandy and paler above, and wanting the distinct ocellated spots on the wings which distinguish the Brazilian bird.

The single specimen sent by Prof. Nation is a female, and has the wing-band rufous, and the gular spot indistinct and fulvous.

†10. PORZANA JAMAICENSIS (Gm.).

"Found in the *alfalfa*-fields."—W. N.

Does not seem to differ from Guatemalan specimens.

†11. PORZANA ERYTHROPS, sp. nov. (Pl. XXI.)

"Found in the ditches, where there is much vegetation."—W. N.

I have not been able to find any description of this very well-marked species, which may be described as follows:—

*Supra fuscescenti-olivacea, alis et cauda concoloribus: capitis et cervicis lateribus cum corpore subtus pallide plumbeis, gula albicante: hypochondriis, alarum tectricibus inferioribus et crisso nigricantibus albo transfasciatis: ano fulvescente: rostro ad basin sanguineo, inde corneo, apice flavo: pedibus flavidis: long. tota 7·5, alæ 4·2, caudæ 1·2, rostri a rictu 0·9, tarsi 1·2, dig. med. c. ungue 1·3.*

*Hab.* in vicin. Limæ in Peruv. transand.

This bird is of about the same size as *P. carolina*, and has the bill of nearly the same form, but seems to be shorter and stouter in general aspect. The wings are short and concave, the second and third primaries being longest, and the next following gradually diminishing in length. But the most remarkable parts of the bird's structure are the feet, the tarsi being shorter and stouter, and the toes much shorter than in any other Crake with which I am acquainted. It may probably be necessary to institute a separate genus

\* P. Z. S. 1866. p. 138.

for this bird; but the single specimen sent is not in a very good state, and does not permit a very accurate description of the feet to be made.

12. *STERNA EXILIS*, G. R. Gray in Mus. Brit.

*Sterna exilis*, Tsch., Wieg. Arch. 1843, p. 389, et F. P. Aves, p. 306 (?).

Prof. Nation sends a single specimen of a well-marked species of Tern "from the vicinity of Callao," which is the same as one in the British Museum from Chili, marked "*Sterna exilis*, Tsch." Whether, however, it can really be Tschudi's bird appears to me to be very doubtful, as it does not accord well with his description. The present species is of about the same size as *Sterna superciliaris* of Eastern South America, but distinguishable by its long, thin, pointed, and slightly incurved bill (which is yellow at the base and black for the terminal half), its longer and deeply cleft tail, and its grey colour underneath.

4. Descriptions of some New Species of Birds from the Seychelles Islands. By EDWARD NEWTON, M.A., C.M.Z.S.

(Plate XXII.)

Before proceeding to name and describe some birds obtained by myself during a stay of a month in the Seychelles Islands, from January 24th to February 24th of the present year, I may state that, previously to my visit, only the following six land-birds had been described as coming from those islands, and these, so far as is known, are not found elsewhere. They are—

*Tinnunculus gracilis* (Less.); Desm., Iconogr. pl. 25.

*Nectarinia dussumieri*, Hartl., Journ. f. Orn. 1860, p. 340.

*N. seychellensis*, Hartl., Orn. Beitr. Madag. p. 35 (an errore?).

*Copsychus sechellarum*, A. Newton, Ibis, 1865, p. 322, pl. viii.

*Turtur rostratus*, Bp., Consp. Av. ii. p. 62.

*Erythrænas pulcherrima* (Scop.); Temm., Pig. pl. 20.

The birds I have now to describe are—

**HYPSSIPETES CRASSIROSTRIS:** vulgo "Merle."

*Hypsipetes* H. olivaceo *admodum similis sed rostro valde robustiore, gula, pectore abdomineque flavescentibus.*

Descr. maris adulti.—*Supra fuscus, nonnihil ad olivaceum vergens, pileo nigro; subtus gula pectoreque cinereis flavo tinctis; abdomine albido-flavescente; remigibus rectricibusque fuscis, secundariis quibusdam externe rufis; rostro sordide aurantiaco; pedibus fusco-flavis, unguibus nigris, iridibus fusco-rubris.*

Long. tota 10·75, alæ 5·3, caudæ 4·5, acrotarsi 1·05, dig. med. sine ungue 0·8, hallucis sine ungue 0·5, maxillæ a fronte 1·1, ejus-

dem a rictu 1·25, mandibulæ ab articulo 1·81; rostri altitudo ad frontem 0·41 poll. Angl.

Descr. fœminæ adultæ.—*Mari similis sed minor, secundariis omnino fuscis, et rectricibus albo terminatis; rostro vivide aurantiaco; pedibus flavis.*

Junioris (masc.?) *rostrum fuscum, pedes brunneo-flavi sunt.*

*Hab.* in insulis Sechellis.

*Mus.* A. et E. Newton (exempla iii.).

TCHITREA CORVINA: vulgo "Veuve."

*T. major*: mas adultus *omnino chalybeo-niger, mediis rectricibus longissimis.*

Fœmina et mas juvenis, *capite chalybeo-nigro; corpore supra castaneo, subtus albo; remigibus fuscis, externe castaneo limbatis.*

Descr. maris vestitu nuptiali.—*Unicolor, chalybeo-nigra sic ut Corvus, rostro pedibusque nigris.*

Long. tota (rectricibus mediis exceptis) circa 8·75, alæ 3·45, caudæ 11·5 (!), acrotarsi 0·75, dig. med. sine ungue 0·5, hallucis sine ungue 3·5, maxillæ a fronte 0·53, ejusdem a rictu 0·99, mandibulæ ab articulo 1·35 poll. Angl.

*Hab.* in insula Sechellarum "Praslin" dicta.

*Mus.* A. et E. Newton (exempla v.).

ZOSTEROPS MODESTA.

*Z. obscure fusco-grisea, annulo periophthalmico niveo, loris nigris.*

Descr. maris adulti.—*Supra olivaceo-grisea, subtus fusco murina; hypochondriis brunneo tinctis; annulo periophthalmico niveo, loris nigris; remigibus rectricibusque fuscis, illis externe griseo limbatis, et interne albido marginatis; rostro griseo; pedibus obscure plumbeis.*

Long. tota circa 4·8, alæ 2·3, acrotarsi 0·72, dig. med. sine ungue 0·46, hallucis sine ungue 0·3, maxillæ a fronte 0·41, ejusdem a rictu 0·58, mandibulæ ab articulo 0·95 poll. Angl.

Fœmina *mari omnino similis.*

*Hab.* in insula Sechellarum "Mahé" dicta.

*Mus.* A. et E. Newton (exempla vii.).

ZOSTEROPS SEMIFLAVA: vulgo "Serin."

*Zosterops Z. poliogastræ\* simillima sed epigastrio abdomineque omnino flavis, et hypochondriis badiis.*

Descr. maris adulti.—*Supra flavo-olivacea, uropygio flavo; subtus flava, hypochondriis badiis; annulo periophthalmico niveo; remigibus rectricibusque atro-fuscis, illis externe flavo limbatis, et interne albido late marginatis; rostro pedibusque plumbeis.*

Long. tota circa 4·3, alæ 2·28, caudæ 1·85, acrotarsi 0·75, dig. med. sine ungue 0·39, hallucis sine ungue 0·3, maxillæ a fronte 0·47, ejusdem a rictu 0·61, mandibulæ ab articulo 0·92 poll. Angl.

\* Heuglin, *Ibis*, 1861, p. 357, pl. xiii.; *Z. euryophthalmos*, ejusd., Sitzungsber. k.-k. Akad. Wien, 1856, p. 276 (descr. nulla).

Fœmina *mari similis*.

*Hab.* in insula Marianna Sechellarum.

*Mus.* A. et E. Newton (exempla ii.).

FOUDIA SEHELLARUM: vulgo "Mangeur du riz."

*F. fusco-brunnea*; *fronte, occipite et mento aureo tinctis (vestitu hiemali)*.

*Descr.* maris adulti vestitu hiemali.—*Supra fusco-brunnea, fronte occipiteque aureo et nucha olivaceo tinctis; capitis lateribus olivaceis; subtus pallidior, mento et gula flavescens; remigibus reetricibusque fuscis olivaceo limbatis; rostro nigro; pedibus fuscis.*

Mas juvenis vel fœmina aureo caret colore in fronte et mento, aliter colores viridiores, præsertim in remigum marginibus, habet; rostro pedibusque hepaticis.

Long. tota circa 4·9, alæ 2·95, caudæ 2·1, acrotarsi 0·85, dig. med. sine ungue 0·52, hallucis sine ungue 0·41, maxillæ a fronte 0·65, ejusdem a rictu 0·67, mandibulæ ab articulo 0·98 poll. Angl.

*Hab.* in insula Marianna Sechellarum.

*Mus.* A. et E. Newton (exempla iii.).

*Obs.* Hujus avis vestitus nuptialis mihi ignotus est, forte caput totum ea tempestate flavum est.

PALÆORNIS WARDI: vulgo "Cateau vert."

Palæornis *P. alexandri similis sed rostro robustiore; fasciis humeralibus phæniceo-rubris; nucha sine fascia rubra.*

*Descr.* adulti.—*Pileo et gula cærulescentibus, genis ochraceo-viridibus, torque perignathico nigro a rictu ad nucham ducto; dorso alisque gramineo-viridibus; uropygio vividiore; singulis fasciis latis humeralibus phæniceo-rubris; remigibus et reetricibus saturate viridibus cæruleo lavatis, his subtus flavescens; fuscis illis; gastræo flavescens-viridi; rostro vivide coccineo, apice pallidior; pedibus fuscis.*

Long. tota circa 16, alæ 7·75, caudæ 9, acrotarsi 0·75, dig. med. sine ungue 0·95, hallucis sine ungue 0·5, maxillæ a fronte 1·4, ejusdem a rictu 1·15, mandibulæ ab articulo 1·4 poll. Angl.

Fœmina vel mas junior *mari adulto simillimus, sed coloribus obscurioribus.*

*Hab.* in insulis Sechellis.

*Mus.* A. et E. Newton (exempla iii.).

*Obs.* Ex dono SWINBURNE WARD, armigeri, totarum Sechellarum præfectus, et in ejus honorem nominata.

CORACOPSIS BARKLYI: vulgo "Cateau noir." (Pl. XXII.)

Coracopsis *C. comorensis quoad colorem admodum similis sed valde minor.*

*Descr.* maris adulti.—*Brunneo-nigra, remigibus reetricibusque saturatoribus ardesiaco tinctis; rostro, ceru pedibusque nigro-fuscis.*

Long. tota circa 13, alæ 8·1, caudæ 6, acrotarsi 0·76, dig. med.



sine ungue 1·0, hallucis sine ungue 0·48, maxillæ a fronte 0·95, ejusdem a rictu 0·95, mandibulæ 1·37 poll. Angl.

Fœmina mari similis sed minor.

Hab. in insula Sebellarum "Praslin" dicta.

Mus. A. et E. Newton (exempla iii.). Vivar. Soc. Zoolog. Londinensis, ex dono S. Ward.

Obs. In honorem HENRICI BARKLY, ordinis honorabilissimi Balnei equitis aurati, insulæ Mauritanæ et terrarum dependentium proconsulis, scientiarum amici, nominata.

## 5. On some Fishes from the Wynaad.

By Surgeon FRANCIS DAY, F.Z.S., F.L.S.

Whilst collecting the fishes which reside on and around the Neilgherries in 1866, I solicited from residents in neighbouring parts contributions from the piscifauna of their localities. John Burnett, Esq., of Cholady, Vithery, in the Wynaad, near Calicut, was good enough to favour me with eight species, of which I propose giving short descriptions. His coffee-estate is situated in the Wynaad range of hills, about 3000 feet above the level of the sea; and the water from which these species were obtained is a small rivulet about 200 yards from his bungalow.

The following is a list of the specimens received, with the Tamil names as applied in that locality:—*Ophiocephalus gachua*, Buch. Ham.; *Hara malabarica*, Day (*Cutti meen*, Tam.); *Saccobranchus singio*, Buch. Ham.; a small Loach (*Cul irum*, Tam.); *Homaloptera brucei*, Gray (*Cul candee*, Tam.); a *Garra* (*Cul korava*, Tam.); and three others of the Carp family, which I have previously described as new:—*Puntius melanampyx*, *Paradanio aurolineatus*, and *Rasbora woolaree*.

I think that the capture of the *Homaloptera brucei* in this part of India is exceedingly interesting, when coupled with the fact that I took the *Garra gotyla* in an adjacent locality, as described in my "Fishes of the Neilgherries." It makes it exceedingly probable that General Hardwicke's drawings of these species came originally from Buchanan Hamilton's collection, and that the latter obtained his specimens when travelling through this portion of the Madras Presidency, as described in his 'Journey through Mysore.' Another reason for believing this solution to be correct is, that these species of fish do not appear to have been obtained since then in Bengal.

NEMACHEILUS STRIATUS, sp. nov.

*Cul irum* (Tam.).

B. iii. D. 2/8. P. 11. V. 8. A. 2/5. C. 17.

Length of head  $\frac{1}{7}$ , of pectoral  $\frac{1}{7}$ , of caudal  $\frac{1}{4}$  of the total length. Height of head  $\frac{1}{11}$ , of body  $\frac{1}{11}$  of the total length.

Eyes not covered by skin. Diameter nearly  $\frac{1}{4}$  of length of head.

Dorsal profile more convex than that of the abdomen, which latter is nearly horizontal. Body laterally compressed posterior to the dorsal fin. Back moderately broad, and in the mesial line near the caudal fin slightly elevated.

Mouth almost below, surrounded by fleshy lips. Two pairs of cirri on the snout, the external reaching the posterior, and the internal the anterior margins of the orbit; they are not united at their bases. The maxillary cirri extend to beneath the anterior margin of the orbit. There is no spine on the head. Nostrils generic.

*Fins.* Dorsal arises slightly in advance of the ventral, and its base is situated midway between the snout and the posterior extremity of the caudal fin; whilst the anal is in the posterior fourth of the body. The caudal, which has a broad base, is slightly lobed at its posterior extremity.

Scales well developed over the whole of the body, not on the head.

Lateral line passes direct from the centre of the orbit to the middle of the caudal fin.

*Colours.* Reddish brown, with very narrow light-reddish vertical bands, most distinct in the posterior part of the body, where there are sixteen posterior to the commencement of the dorsal fin, and several more between that and the head, which last is marked all over with black lines and spots on a light reddish base. A very black bar exists at the base of the caudal fin. Dorsal fin with a light margin, bounded below by a jet-black band, and having a dark base, between which two marks it is brilliant orange. Anal orange, with some dull black spots. Caudal yellow, with some dull marks.

Grows to  $2\frac{1}{2}$  inches in length.

*Hab.* Wynaad, at 3000 feet elevation.

#### HOMALOPTERA BRUCEI.

*Balitora brucei*, Gray, Ill. I. Z. pl. 41. f. 1; Cuv. et Val. xviii. p. 101.

*Platy cara brucei*, McClelland, J. A. S. xix. pp. 299, 428.

*Platy cara australis*, Jerdon, Mad. J. L. & S. no. 35, p. 333.

*Cul candee* (Tam.). The Stone Carp.

B. iii. D.  $\frac{3}{8}$ . P. 19. V. 9. A.  $\frac{2}{4}$ . C. 17. L. 1. 70.

Length of head  $\frac{1}{6}$ , of pectoral  $\frac{1}{5}$ , of base of dorsal  $\frac{1}{4}$ , of base of anal  $\frac{1}{23}$ , of caudal  $\frac{1}{6}$  of the total length. Height of head  $\frac{1}{14}$ , of body  $\frac{1}{7}$ , of dorsal  $\frac{1}{7}$ , of ventral  $\frac{1}{6}$  of the total length.

Eyes directed upwards and outwards. Diameter  $\frac{1}{5}$  of length of head, 2 diameters apart, nearly 3 diameters from end of snout.

Head posteriorly wide, and becoming rather pointed towards the snout; anteriorly it is so much depressed that the dorsal profile is slightly convex, whilst that of the abdomen is horizontal.

Mouth small, transverse, and on the abdominal aspect of the fish, posterior to the snout; cleft very short, the upper jaw in advance of the lower. Lips fleshy. Two pairs of short cirri are situated on the anterior inferior aspect of the snout, their length being equal to two-thirds of the diameter of the orbit. There is also a pair of cirri

at the angle of the mouth, thicker and slightly longer than the other two pairs. The lips do not cover the jaws. Snout soft; nostrils at anterior superior angle of the orbit, the posterior oval, the anterior circular, the two divided from one another by a valve. Summit of head smooth. Branchial aperture small, vertical. Isthmus wide. Branchiostegal membranes concealed.

*Fins.* Dorsal situated midway between end of snout and the base of the caudal fin, as well as opposite the ventral. Pectoral arises nearly under opercles, and extends to the base of the ventral. The anal is situated in the posterior fifth of the body. Dorsal fin highest anteriorly. Pectoral subhorizontal, with a broad fleshy base, its anterior margin rounded. Ventral also subhorizontal, and its front margin rounded. Caudal lobed in its posterior third, and the inferior rays produced.

Scales small, none above, or on the head, or anterior surface of the abdomen; a few before the anus (except in the mesial line), which is situated opposite the posterior extremity of the ventral fin. They are roughened in circular or horizontal furrows; edges smooth.

*Teeth.* Pharyngeal teeth 5/5.

Lateral line straight from behind the orbit to the centre of the caudal fin. It consists of single tubes in each scale.

*Colours.* Dull olive, becoming yellow beneath, with deep-brown blotches. Fins diaphanous; dorsal with three rows of dark spots; ventral with three or four; anal with two; pectoral yellowish, dark anteriorly, and with three rows of dots across it; caudal with three irregular bands and black tips.

Out of eight specimens the largest was  $3\frac{1}{2}$  inches long.

*Hab.* Wynaad, in streams.

#### GARRA ALTA, sp. nov.

*Cul korava* (Tam.). Stone *Ophiocephalus*.

B. iii. D. 2/8. P. 15. V. 10. A. 2/5. C. 17. L. 1. 32. L. tr. 5/3.

Length of head  $\frac{1}{5}$ , of pectoral above  $\frac{1}{6}$ , of base of dorsal  $\frac{1}{7}$ , of anal  $\frac{1}{8}$ , of caudal  $\frac{1}{5}$  of the total length. Height of head  $\frac{1}{5}$ , of body  $\frac{1}{5}$ , of dorsal  $\frac{1}{5}$ , of anal  $\frac{1}{7}$  of the total length.

Eye circular, situated near to the upper profile of the head, and directed slightly outwards and upwards. Diameter  $\frac{1}{6}$  of length of head,  $2\frac{1}{2}$  diameters apart,  $3\frac{1}{2}$  diameters from end of snout.

The abdominal profile in this species is nearly horizontal, from the anterior extremity of the snout to the base of the caudal fin; whilst the dorsal profile is much elevated, forming a curve, from the anterior margin of the snout to the base of the dorsal fin. The head at the occiput is broad, whilst the snout is also comparatively wide.

Snout with a badly developed transverse cleft, and the whole covered with very large glands. Mouth transverse and below, its gape equal to two-thirds the length of the base of the dorsal fin. An oval suctorial disk situated behind the lower jaw. One pair of cirri on snout, equal in length to the diameter of the orbit; the maxillary pair only one-third of that length.

*Fins.* The anterior extremity of the dorsal is midway between the snout and base of caudal; whilst the ventral is under its centre. Anal is situated in the posterior fourth of the body. The caudal has a broad base, and is lobed in its posterior half.

*Colours.* Rifle-green, with a bluish-green stripe along the centre of the body and middle of the caudal fin. Abdomen greenish yellow. Fins yellow; dorsal, pectoral, and ventral externally stained darkish. Edges of scales darker than their centres. Eyes golden.

*Hab.* Wynaad, in rapid streams.

## 6. Additional observations on *Hyalonema mirabile*.

By J. S. BOWERBANK, LL.D., F.R.S., F.Z.S. &c.

Since my paper on *Hyalonema mirabile*, read January the 10th at the Zoological Society, I have been favoured by my friend Mr. Henry Lee with the loan of a specimen of that species singularly illustrative of the nature and structure of the corium, the outer coat of that organ having little or no sand or other extraneous matter imbedded in it. At the first view this singular specimen might readily be mistaken for a new species, the thin smooth corium quite destitute of sand gives it an appearance so very unlike the usual description of specimens; but a close examination of its structural characters quickly disabuses us of this idea. The cruciform and other spicula imbedded in the corium; the spiral column and the other structures of the basal mass of the sponge, are identical with the corresponding structures of the well-known specimens of *Hyalonema*. It is the absence of the usual sand which alone makes the difference between them, and at the same time greatly facilitates our knowledge of the structures of these curious animals.

The whole of the corium in Mr. Lee's specimen is divided into lozenge-shaped areas of various sizes, a thin protuberant line forming the common boundaries of the adjacent areas; at each side of this line the motive filaments are based, and from these points they pass in direct lines to the protuberant osculum in the middle of the area, passing up the sides, and on to the apex, where they terminate in a ring formed by the outer margin of the apical membrane of the osculum. The fibres are broad and flat at their bases, gradually attenuate in breadth and slightly increase in thickness as they approach their distal terminations.

Two of the oscular bodies which were raised but very little above the surface of the corium, when mounted in water, exhibited the radial arrangement of the fibres in their natural condition in a very satisfactory manner: forty-four were counted; but this was evidently not the whole of them, as many others were indistinctly apparent behind those which were counted. In another specimen in my collection which has been soaked in solution of potass I counted sixty-three; and in one of the large areas containing an osculum in Mr. Lee's specimen I counted ninety-six motive fibres, radiating from the

apical portion of the organ to the distal portions of the area; while in a smaller one from the same sponge there were only twenty-eight; so that it appears that no two of these organs are furnished with precisely the same number of motive filaments, and that they increase in number as the organ increases in age and size. The fibres on the apices of the oscula of Mr. Lee's specimen, when immersed in water only, were not above half the diameter of those which had been operated upon with caustic potass.

The inner membrane of the corium in Mr. Lee's specimen is very thin; in a portion of it removed and immersed in water for examination there were numerous minute lentiform cells and a considerable number of gemmular bodies, identical in size, form, and structure with those with which we are so familiar in Halichondroid sponges, and which also occur abundantly in the genus *Dactylocalyx*; but I could not detect any traces of fibro-cellular organs.

The more repeatedly and closely we examine the curious protuberant organs on the corium the more strongly we are confirmed in the opinion that every part of *Hyalonema mirabile* is of a purely spongy nature. The discrepancy in the numbers of the supposed tentacula beneath the apices of the oscular organs (no two appearing to have anything like the same number of fibres in their circular series), the invariable attachment of both their basal and apical terminations to their respective membranes, their complete immersion in the parietes of the oscular organs, the firm and solid structure of the fibres themselves, and the undoubted keratose structure of the mass on which they are imbedded, all concur in proving them to be anything rather than polypiferous organs. On the contrary, in numerous specimens of *Zoanthus sulcatus*? in my possession, dispersed in patches on the surface of *Desmacidon Jeffreysii* from Shetland, the structure of the polypidom is widely different from that of the protuberant organs of *Hyalonema*. In *Zoanthus* it is simply formed of grains of sand cemented by coagulable lymph, as in the sand-tubes of *Terebella*, and, like them, rapidly decomposing after the death of the animal. In the polypidoms of the *Zoanthus* on *Desmacidon Jeffreysii* no radiating fibres like those in *Hyalonema* are to be found, nor could I detect any distinct remains of the polypes that once inhabited them.

#### 7. On *Alcyoncellum speciosum*.

By J. S. BOWERBANK, LL.D., F.R.S., F.Z.S. &c.

ALCYONCELLUM SPECIOSUM, Quoy et Gaimard.

*Euplectella aspergillum*, Owen, Trans. Zool. Soc. iii. p. 203.

*E. cucumer*, Owen, Trans. Linn. Soc. London, xxii. p. 117, pl. 21.

A considerable number of this beautiful sponge have recently been imported, and its natural history has again been the subject of much interest among zoologists. The first notice of its existence occurs

in the 'History of the Voyage of the Astrolabe,' the zoological portion of which was written by MM. Quoy and Gaimard; and as their account of the sponge is short, it has appeared to me advisable that the whole should be quoted, that we may obtain a clear comprehension of its early history; and this course is the more necessary as the original name has been supplanted by that of *Euplectella aspergillum*, apparently without any sufficient reason for such an alteration, and contrary to all our notions of the rights of priority in nomenclature.

The authors of the 'Natural History of the Voyage of the Astrolabe' have referred this beautiful sponge to De Blainville's genus *Alcyoncellum*; and in vol. iv. p. 302, pl. 26 (Zoophytes). f. 3, they give the following description of it:—

"Corps phytoïde, sub-pierreux, solidifié par des spicules tricuspides; à branches peu nombreuses cylindriques, fistulaires, terminées par un orifice arrondi, à parois épaisses, composées de granules réguliers, polygones, alvéoliformes, percés d'un pore à l'extérieur et à l'intérieur.—Bl.

*"Alcyonelle specieux.*

"*ALCYONCELLUM SPECIOSUM*, nob.

"*Alcyoncellum cylindricum, cavum, extremitate rotundum, album, reticulis lapidicis elegantissime contextum.*

"Cette singulière production donnant lieu au genre ci-dessus représente un cylindre creux de sept à huit pouces d'étendue, en forme de phallus, arrondi et un peu dilaté à une extrémité, ouvert à l'autre, à parois minces, formées de filets très déliés, lâchement accolés les uns aux autres, entrecroisés dans tous les sens de manière à former des nombreuses mailles arrondies, presque régulières, comme celles de la dentelle ou bien des sièges tissés en rotang. Ce qui fait que toute la masse est à jour. En voyant l'élégante blancheur et la régularité d'un tel tissu, on a de la peine à se persuader qu'il est le produit d'une réunion d'animaux. On aime mieux en voir un seul au fond de la mer travailler à se faire ce logement pour un but quelconque, en tirant de sa propre substance, comme le font certaine chenilles, la matière, qui se pétrifie aussitôt qu'elle est en contact avec l'eau.

"Ce zoophyte habite, nous a-t-on dit, de grandes profondeurs d'où il a été amené par une sonde. Les éclats qu'on remarque à une de ses extrémités indiquent qu'il doit être fixé. Nous le devons à M. Merkus gouverneur des Moluques, qui s'est plu à favoriser avec la plus grande obligeance nos recherches d'histoire naturelle pendant le temps que nous avons passé dans les îles qu'il administre."

The generic and specific characters assigned to this sponge by MM. Quoy and Gaimard, and those published in the second edition of Lamarck's 'Animaux sans Vertèbres,' appeared to me to be so vague and insufficient when I was preparing my paper on the "Anatomy and Physiology of the Spongiadae," published in the 'Philosophical Transactions of the Royal Society' for 1862, p. 1102, that

I proposed the following as an amended description of the generic characters:—

Sponge fistulate; fistula single, without a massive base. Skeleton—primary fasciculi radiating from the base in parallel straight or slightly spiral lines; secondary fasciculi at right angles to the primary ones. Oscula congregated, with or without a marginal boundary to their area.

I have lately acquired two fine specimens of the sponge, and have been enabled to examine the structure of the skeleton more minutely than I could venture to do that of the rare and beautiful specimen in the possession of the late Mr. Cuming; and I have ascertained that the skeleton is not composed of fasciculi of spicula, as at that time I believed it to be, but that it is a regular and very delicate siliceo-fibrous structure. This fact necessitates a further correction of the generic characters, which I propose to be as follows:—

Sponge fistulate; fistula single, without a massive base. Skeleton siliceo-fibrous; primary lines radiating from the base in parallel straight or slightly spiral lines; secondary lines at right angles to the primary ones. Oscula congregated, with or without a marginal boundary to their area.

The siliceo-fibrous structure of the skeleton necessarily removes this genus from the group of genera with which I had placed it, and associates it with *Dactylocalyx* and other siliceo-fibrous sponges; and this association will be seen, when we consider the specific characters of the sponge, to be in very close accordance with the peculiar interstitial and other remarkable spicula of that beautiful group of sponges.

The siliceo-fibrous structure of *Alcyoncellum* decidedly separates this genus from *Polymastia*, in which the primary and secondary lines of the skeleton are invariably composed of elongate fasciculi of spicula; and although in the latter genus the general arrangement of the skeleton-structures are so similar to those of the former that slightly magnified drawings of the one could scarcely be distinguished from those of the other, the singularly beautiful forms of interstitial spicula so abundant in *Alcyoncellum* are entirely absent in the corresponding portions of the structure of *Polymastia*. I will not repeat my reasons for differing in opinion from Prof. Owen regarding the alteration he has proposed of Quoy and Gaimard's generic name of *Alcyoncellum* to that of *Euplectella*, in his paper on that subject, published in the 'Transactions of the Zoological Society of London,' vol. iii. pt. 2. p. 203, pl. 13, as I have fully discussed that portion of my subject in my paper on the "Anatomy and Physiology of the Spongiadæ" (Phil. Trans. Roy. Soc. 1862, p. 1102).

Having thus rectified the errors in the descriptions of the genus, I shall proceed to consider the specific characters of the species *Alcyonellum speciosum*, Quoy et Gaimard (*Euplectella aspergillum* and *E. cucumer*, Owen); and in doing so I may state that my knowledge of the beautiful structures I shall have to describe was derived from the first specimen, imported by the late Mr. Hugh Cuming, who in 1856 obliged me with the loan of the sponge for several weeks that

I might make a searching investigation of the peculiarities of its structure. Dr. A. Farre also allowed me the free examination of his specimen, described and figured in the 'Transactions of the Linnean Society of London,' vol. xxii. p. 117, pl. 21, as *Euplectella cucumer*, Owen. I have repeated these investigations on two other specimens in my possession, of nearly the same size and form as that formerly possessed by Mr. Cuming, but now in the British Museum; and I have found that the structure of their skeletons and the curious and beautiful forms of spicula contained in their interstices are perfectly identical even to the minutest form; so that we may reasonably and safely conclude that there is but one species of this beautiful sponge known to us at present in England, and that it is identical with the species described by MM. Quoy and Gaimard in their 'Zoology of the Voyage of the Astrolabe.' Neither of the above-named authors, nor Prof. Owen in either of his descriptions of the sponge, has given us a detailed statement of its specific characters; I shall therefore proceed to endeavour to rectify this omission as follows:—

*ALCYONCELLUM SPECIOSUM*, Quoy et Gaimard.

Sponge sessile, cylindrical, more or less curved, enlarging progressively from the basal to the distal extremity; upper portion furnished with numerous sharp ridges of interlacing fibres disposed diagonally and somewhat symmetrically; apex truncate, closed by a coarse, ventricose, fibrous network, and encircled by a strongly produced fibrous ridge or frill. Base furnished with numerous fasciculi of large and long prehensile spicula projected downward: spicula attenuato-quaternate, barbed alternately for about one-third of their length from the distal extremity. Oscula congregated, terminal. Pores congregated; inhalant apertures symmetrically equidistant, disposed in lines radiating from the base to the apex of the sponge. Dermal membrane unknown. Skeleton symmetrical; primary lines radiating from the base to the apex, equidistant; secondary lines at right angles to the primary ones; interstitial structures interlacing diagonally. Spicula of the membranes:—interstitial spicula rectangulated, attenuated hexradiate spicula, short and stout, rarely completely developed; and the same form with slender and delicate radii, fully developed; also attenuated rectangulated triradiate, apically spined. Spicula of the sarcode:—trifurcated attenuato-hexradiate; and floricombo-hexradiate, very minute.

Colour, skeleton very light amber-yellow.

*Hab.* Philippine Islands, Island of Bohol, 10 fathoms (*Mr. Hugh Cuming*); Island of Zebu, about 24 fathoms (*Mr. R. Geale*).

Examined in the skeleton state.

The form of the skeleton of the sponge is exceedingly graceful; it is that of an elongated Cornucopia, composed of a beautiful and regular network of siliceous fibres. It has no solid base to retain it in an erect position; but in lieu of this support it is furnished with a vast number of curious and beautiful retentive spicula, each acting the part of a line and grapnel when their recurvo-quaternate heads



are immersed in the sand, as appears to have been the case with the greater number of the specimens that I have examined, or when inserted in, or adherent to the tissues of another sponge, as in the case of the specimen in the possession of Dr. A. Farre. The recurvo-quaternate terminations of their distal ends are short and stout; and the terminal boss whence they spring is very strongly produced, so as to give them great retentive power. There are usually but four hooks; but in one instance I observed that number was doubled by each ray being replaced by two somewhat smaller ones. The shaft of the spiculum is barbed alternately at nearly regular distances for about one-fourth of its length from the recurvo-quaternate apex, the barbs pointing towards the smooth attenuating basal portion of the shaft, and they decrease in length and number from the apex of the spiculum downward. The structure of the apex of the fibre, combined with the numerous stout spines of the distal portion of the shaft, gives them remarkably strong prehensile power. These organs occur in large fasciculi, each consisting of numerous spicula. Their basal portions are clustered around the primary lines of the skeleton near their bases, and are firmly cemented to them for about a half or one-third of their length, from which attachment they ultimately pass off, diverging in various directions in search of points of adhesion. Their length frequently exceeds 3 inches. Although siliceous, they are remarkably flexible and strong. The shaft consists of numerous concentric layers containing comparatively a large amount of animal matter.

The structure of the fibre of this sponge is solid and siliceous, like that of *Dactylocalyx*; but the mode of its disposition in the skeleton is very different. The primary lines consist of nearly parallel continuous fibres anastomosing laterally at irregular distances; so that in the aggregate they form a single circular series of strong and rigid compound columns of support bounding the large tubular internal cavity, and firmly braced in their proper positions by the secondary series of similarly constructed fibres, placed at right angles to the primary ones. This arrangement is further strengthened by numerous small fibres disposed in various diagonal lines to the primary and secondary series of the skeleton-tissues. This admirable arrangement produces a structure combining the greatest amount of lightness, strength, and beauty that can well be conceived to exist in nature. At a short distance above the base of the sponge it is further strengthened by numerous strongly produced angular ridges of fibrous tissue disposed in lines which are always more or less diagonal to the long axis of the sponge, and usually somewhat flexuous. The ridges are but slightly produced near the base of the sponge, but they increase both in height and strength as they approach its apex. The summits of the ridges are composed of strong lines of anastomosing fibres; and two or three such lines of fibres are frequently to be seen beneath the outer one. These ridges do not appear to have ever formed portions of the terminal ridge or frill of the sponge, bounding the oscular area, although they agree perfectly in the mode of their structure; and it is probable that the circular

ridge is coeval with a very early condition of the animal, and that the increment of the sponge has taken place in the space existing between its base and apex. In the type specimen formerly in the collection of the late Mr. Cuming, a few ridges such as occur on its outer surface were apparent on its inner one, a little below the oscular area; but I have not detected them in the corresponding situation in the specimens in my own possession.

The oscular area within its beautiful circular frill or ridge is entirely filled with oscular orifices. The network of which it is formed is simple and irregular in its structure; the rete is composed of numerous closely compacted fibres, so arranged as to afford the greatest amount of resistance in the least possible space. A transverse section of one of these fibres would be like that of a double convex lens. The excurrent orifice of this great terminal network is well indicated by the absence of interstitial spicula within its area, although on the inner surface of the oscular ridge bounding it they are in as great abundance as on other parts of the body of the sponge. In the living condition there is little doubt that the whole of the area would be furnished with a stout dermal membrane containing the true oscula of the sponge. In one of the areas of the oscular network of one of my specimens, near its margin, I found a fragment of such a membrane, about an eighth of an inch in diameter, in a fine state of preservation. It was furnished with a reticulation formed of numerous long acerate spicula closely fasciculated together; and in conjunction with this network there was a layer of sarcodous membrane, in which several of the well-known forms of the interstitial spicula of the sponge were imbedded, thus verifying the reticulated structure as a portion of the tissues of *Alcyoncellum*; but the semi-detached state of the fragment forbids our assigning it with certainty to the dermal tissues of the sponge. The sarcode is abundant on this fragment; and, as in other smaller fragments of that substance which I have found adhering to parts of the skeleton, the colour is that of a full amber-yellow.

The series of equidistant circular apertures disposed in single lines between the primary lines of the skeleton are evidently the inhalant areas of the sponge; and above each of these in the living condition there is most probably a congregation of pores, like those above the intramarginal cavities in *Geodia* and *Pachymatisma*. The margins of these apertures consist of a stout ring of siliceous fibres, very like those at the summits of the diagonal ridges on the body of the sponge.

The interstitial spicula of this sponge afford a numerous and beautiful series of objects for the microscopist; and some of them appear to be peculiar to this species. In well-preserved specimens of the sponge that have not been washed and bleached to make them look pretty, they are so numerous and so closely packed together that in some parts they entirely obscure the view of the skeleton-lines beneath them; and, if we may judge by analogy, their office is to afford points of adhesion to the interstitial membrane, and thus to vastly increase the amount of surface of the nutrient membranes and sar-

code of the sponge. They consist of attenuated rectangulated hexradiate spicula and of rectangulated triradiate ones.

There are two well-characterized descriptions of the attenuated rectangulated hexradiate spicula. The first has the radii comparatively short and very stout; this form is exceedingly protean, the full complement of rays being rarely developed. They vary from the form of an inequiacerate spiculum to the completely developed hexradiate one, with intermediate incomplete forms in every imaginable variety. They are dispersed abundantly on the outer surface of the skeleton-tissues, especially near the bases of the diagonal ridges. The varieties of this form of spiculum are described in detail in the 'Philosophical Transactions of the Royal Society' for 1858, p. 309, pl. 25. figs. 24 to 33, and in 'Monograph of British Spongiadæ,' vol. i. p. 52, pl. 7. figs. 174 to 183.

The second form of attenuated rectangulated hexradiate spiculum is much more constant in its development, an incomplete one being of rare occurrence; their proportions are more equable and slender than those of the first description. Their radii are comparatively long and slender; and the basal ray of the axial portion is frequently very much elongated, and has its termination somewhat clavate and more or less spinous, while the distal and lateral rays are usually acute and without spines. These spicula *in situ* are grouped together in considerable numbers in the interstitial spaces of the skeleton, their positions being coincident, and their axes frequently very nearly touch each other. Their office is apparently the same as those of the larger and stouter description of the same form—that of affording points of attachment to the interstitial membranes, so as to produce innumerable surfaces for the multiplication of the nutrimental membranes of the sponge. They are described and figured in the 'Philosophical Transactions' for 1858, p. 310, pl. 25. fig. 34, and in 'Monograph of British Spongiadæ,' vol. i. p. 260, pl. 7. fig. 184.

The attenuated rectangulated triradiate spicula are not the triradiate stage of development of a hexradiate spiculum; their form is a normal one, and their proportions are distinctly different from either of the hexradiate ones. Sometimes the radii are attenuated and smooth; but usually the apices of the rays are more or less spinous, and occasionally somewhat clavate. They are not so numerous as the hexradiate forms. They are described and figured in the 'Philosophical Transactions' for 1858, p. 313, pl. 26. fig. 7, and in 'Monograph of British Spongiadæ,' vol. i. p. 260, pl. 9. fig. 198.

The sarcode of this sponge affords two of the most elegant and complicated forms of spicula with which we are acquainted—the trifurcated attenuato-hexradiate, and the floricom-hexradiate form. The first is not peculiar to *Alcyoncellum*, as it is also found abundantly in the sarcode of *Dactylocalyx punicea* and other siliceo-fibrous sponges. The latter I have never found in any other sponge than the one under consideration.

The trifurcated attenuato-hexradiate stellate spiculum, with a power not exceeding four or five hundred linear, appears as a simple multiradiate spiculum; but viewed with a power of about 1000 linear

its structure can be distinctly made out. It consists of a central primary rectangulated hexradiate spiculum, the rays of which are short and stout, each furnished with three attenuating slightly radiating secondary spicula, which terminate acutely. See 'Philosophical Transactions,' 1858, p. 311, pl. 25. fig. 39, and 'Monograph of British Spongiadæ,' vol. i. p. 55, pl. 8. fig. 189.

The floricommo-hexradiate form is the most elegant and elaborately constructed spiculum I have ever seen. It consists of six short primary rectangulated central radii of equal length and diameter, the terminations of which are slightly expanded; and from each of these seven or more delicately formed petaloid secondary spicula radiate, but not in straight lines; each curves slightly outward from its base, and then curves inward again until they nearly meet a little below their distal terminations; and then again they curve outwards, so as to allow of the full expansion of their beautiful petaloid apices, the margins of which are delicately dentate, the whole structure simulating a beautiful flower. See 'Philosophical Transactions,' 1858, p. 312, pl. 26. figs. 3 and 4, and 'Monograph of British Spongiadæ,' vol. i. p. 55, pl. 8. figs. 193 and 194.

This form of spiculum is by no means rare in *Alcyoncellum*, but it is not frequently that a perfect one is obtained. I found them abundantly at the base of the terminal fringe of the sponge, and also at the bases of the diagonal ridges. I have never found any of these complicated forms of hexradiate spicula in any other sponges than the siliceo-fibrous ones.

*Alcyoncellum speciosum* is not the only species of that genus known to science. There is an imperfect specimen of very delicate texture in the Museum of the Jardin des Plantes at Paris, from which I obtained the bifurcated rectangulated hexradiate form of spiculum represented in the 'Transactions of the Royal Society' for 1858, pl. 25. fig. 38, and 'Monograph of British Spongiadæ,' vol. i. p. 55, pl. 8. fig. 188. This singular form is peculiar to that species; and there are other forms of spicula and peculiarities of structure that unmistakeably stamp it as a distinct species from *A. speciosum*. The large longitudinal radial lines of the skeleton do not all pass into the great terminal oscular area of the sponge; the greater portion of them terminate when they reach the marginal ring of the oscular area; about one in every three or four pass the ring and form a portion of the reticulation of that great area. The distal termination of this sponge very closely resembles that of *Alcyoncellum speciosum* (*Euplectella aspergillum*, Owen), figured in the 'Transactions of the Zoological Society,' vol. iii. p. 203. The primary or radial lines of the skeleton of this species are symmetrically parallel, and are nearly straight from the lower part of the sponge to its apex. The secondary or transverse series of skeleton-structures pass round its parietes within the primary or radial lines of the skeleton, at about right angles to them. This species is designated by Prof. Valenciennes *Alcyoncellum corbicula*. It was obtained in 80 fathoms off the Island of Bourbon.

There is in the French Museum another specimen of *Alcyoncellum*,

which differs in its construction from all the other specimens of that genus known to us either in the French Museum or in the English collections. This sponge is about 8 inches in height,  $2\frac{1}{2}$  inches in diameter at the apex, and  $1\frac{1}{2}$  inch at the base, and the body is cylindrical. The parietes of the sponge are of about the same thickness as those of *A. speciosum*. The primary lines of the skeleton are wide apart, irregular, and run diagonally and flexuously over its surface. The basal end of the sponge is closed and rounded, and one side of it is rather longer than the other, and there is not the slightest indication of its having been furnished with prehensile spicula similar to those of *A. speciosum*. The attachment of the sponge is partly on one side, in the form of a thick incrustation, and partly close to the base, by a similar patch of thickened tissue.

But the most striking and characteristic difference in its structure is in the apical termination of the sponge, which is totally destitute of the great marginal ring that surrounds the oscular area in *A. speciosum*, the sides and oscular area merging in each other insensibly and without the slightest trace of a boundary line. In this character this species closely resembles the distal extremity of *Polymastia mammillaris* and other species of that genus, which have not the oscular area confined within a marginal ring.

The specimen appears to have been too well washed, as no remains of interstitial spicula could be discovered with a 2-inch lens. The sponge is exceedingly beautiful, and the skeleton-structures appear by the aid of the lens like twisted spun glass.

Beside those described above, there is another specimen of *Aleyoncellum* in the Museum of the Jardin des Plantes, which is also named *A. corbicula*; but it differs so much in its structural characters as to render it highly probable that it is a distinct species. It is about 5 inches in height,  $2\frac{1}{2}$  or 3 inches across at its apex, and at the base it is  $1\frac{1}{2}$  inch in diameter. The base is round and smooth, but the body of the sponge assumes a square form. The texture of the sponge is very much thickened and woolly in appearance, and the spaces in its sides much larger than those in the other specimen designated by the same name. The primary lines of the skeleton are rather flexuous towards the base of the sponge, but they become more regular and straight as they approach its apex. There are no indications of elevated ribs either on the exterior or interior of this sponge. I have had no opportunity of examining its structural peculiarities; but I have little doubt of their being different from those of the sponge bearing the same name in the French collection.

## 8. On the Coleoptera of the Azores.

By GEORGE R. CROTCH, M.A.

(Plate XXIII.)

The Azores, though not less interesting, have yet received a far less share of attention, as far as their fauna is concerned, than the

neighbouring groups of Madeira and the Canaries. The exploration of these, however, is due almost entirely to the laborious and unremitting exertions of Mr. T. V. Wollaston, who has devoted himself to working out the Coleopterous fauna of the Atlantic region with a care and perseverance that, unfortunately, finds too few imitators. The fourth group, viz. the Cape de Verde Isles, have also been recently explored by him, and have produced a magnificent series of novelties. It is with considerable pleasure, then, that I am able, through the kindness and liberality of Mr. Godman, to supplement his researches with an enumeration of the Azorean Coleoptera. Our previous knowledge of this group of islands was very limited, but will be found admirably summed up in M. Drouet's 'Éléments de la Faune Açoréenne.' Indeed it is to him and his companion M. Morelet that we owe any detail of the insects, shells, &c. at all. Of Coleoptera he enumerates fifty-nine, and comments upon their European character, five only being peculiar; these were described in part by M. Tarnier in M. Morelet's 'Notice sur l'histoire naturelle des îles Açores;' and one (*Lapar. azoricus*) by M. Drouet himself in his 'Coleoptères Açoréens.' The remaining species cited by him are of the most ordinary character, and show certainly the cultivated state of the islands. In 1865, however, Mr. Godman undertook a voyage to these islands with a view to get a more satisfactory *résumé* of their fauna; and in order that the Coleoptera might receive due attention, he was accompanied by an energetic and well-known English collector, Mr. J. A. Brewer. They arrived at S. Miguel on the 21st of March, and remained there a month. On the 21st of April they visited Terceira for a day, and went on to Fayal; thence they crossed, with some difficulty, to Flores and Corvo. After this Mr. Godman was obliged to return; but his collector (Mr. Brewer) subsequently visited Sta. Maria, though it was then somewhat late in the season. The material thus amassed was liberally placed in my hands by Mr. Godman to be worked out; and it shows a very great advance upon that of MM. Drouet and Morelet, including as it does 213 species, of which thirteen are new to science, and thirty-seven new to the Atlantic district, and redeems the fauna from its purely European character. Of the nine islands, three remain practically unvisited—one, indeed (Pico), being probably the best island for characteristic species, being much the most wooded.

Analogy would lead us to put the fauna at, at least, double the present number; and much of the increase would consist of new species, since, in comparing it with that of the other Atlantic groups, it presents some singular features.

Thus of the 1450 species comprised in the 'Coleoptera Atlantidum' one-fourth are European, one-fourth probably geographical races, and one-half indigenous. Thus in the combined groups only 350 European species occur, while here we have already 160; hence no great increase of this class can be expected. The proportions here take the form of three-fourths European, and about one-tenth, or less, indigenous. This is no doubt due to this collection having

been made more in cultivated districts and the neighbourhood of towns than under canvas in remote ravines, as Madeira has been worked; still it shows that the prevailing Atlantic forms are here only scantily represented. The characteristic genera *Laparocerus*, *Acalles*, *Tarphius*, *Attalus* (all containing eighteen or nineteen species in the other groups) have only solitary representatives. The prevailing genera are *Cryptophagus* (6), *Homalota* (11), *Philonthus* (6), *Lithocharis* (5); but they contain almost entirely introduced species. The two new genera of *Rhynchophora*, *Asynonychus*, and *Neocnemis* barely redeem the general poverty of the fauna; both, however, are very anomalous in their affinities. Two very abundant Madeira forms (*Mesites* and *Dasytes*) are here represented by European species (*M. tardii*, Curt., and *D. nobilis*, Ill.), in place of the cognate species found in the former group; and this is the more singular, as so marked a connexion with Madeira exists in some species\*. The conclusions derived from M. Drouet's lists of the other classes accord with some of these deductions: thus the almost total absence of peculiar Vertebrata (no Reptiles) would seem to show that it had been under very different conditions from the Canaries. In its land-shells, which afford a good parallel to the insects, out of seventy-six species, one-half are peculiar, one-seventh Atlantic, and one-third European; among these *Viquesnelia*, peculiar to the Azores and India, though found fossil in the Pyrenees, is the most remarkable.

A detailed analysis of the 170 European species may throw some light on their origin. I have distributed them into two groups (70 possibly indigenous, and 101 almost certainly introduced by colonists), sorted into eight sections, those printed in italics being new to the Atlantic fauna.

(1) Cosmopolitan species, which are introduced in articles of commerce, especially provisions, to all parts of the world. These are totally without significance in any fauna, their number depending only on the assiduity with which search is made in warehouses &c. in the sea-ports. Cutting off, therefore, the twelve here enumerated, leaves the real fauna at 200 species.

<i>Carpophilus dimidiatus</i> .	<i>Anobium paniceum</i> .
— <i>mutilatus</i> .	<i>Calandra oryzæ</i> .
<i>Silvanus advena</i> .	— <i>granaria</i> .
<i>Nausibius dentatus</i> .	<i>Tribolium ferrugineum</i> .
<i>Corticaria serrata</i> .	<i>Tenebrio obscurus</i> .
<i>Ptinus testaceus</i> .	<i>Alphitobius piceus</i> .

(2.) Species also introduced by the medium of commerce, but which may be characterized rather as frequenters of refuse: they

\* The most striking group in the collection is, however, the *Elaterridae*, with six fine species belonging to as many genera. When we remember that in the Canaries and Madeira this family is represented by the ill-defined and inconspicuous genus *Coptostethus*, Woll., this is very remarkable. Upon examination, however, two appear to be American and two European, thus leaving only two as really indigenous.

are found, for the most part, in the débris of hay- or straw-ricks, about hotbeds, and, indeed, in all vegetable refuse not too rotten\*.

Sericoderus lateralis.	Latridius <i>nodifer</i> .
*Ptenidium apicale.	Corticaria fulva.
Nitidula 4-pustulata.	Typhæa fumata.
— colon.	Mycetæa hirta.
*Monotoma 4-foveolata.	Dermestes frischii.
*— spinicollis.	Aceritus minutus.
— quadricollis.	Carcinops pumilio.
*Aglenus brunneus.	*Trox scaber.
Cryptophagus dentatus.	Blaps similis.
— affinis.	Anthicus floralis.
*— cellaris.	Falagria obscura.
— <i>punctipennis</i> .	Philonthus æneus.
— saginatus.	— umbratilis.
— <i>schmidtii</i> .	Leptacinus pusillus.
*Atomaria munda.	Xantholinus punctulatus.
*Episternus gyrynoides.	Stilicis affinis.
Latridius minutus.	Lithocharis ochracea.

(3) Species introduced in old wood, &c., in houses.

Opilus mollis.	Græcilia pygmæa.
Anobium domesticum.	Clytus 4-punctatus.
Hylotrypes bajulus.	Leptura, <i>sp.</i> — ?

(4) Species inhabiting dung. Here it may be remarked that if islands are dependent on colonization for their Mammalia, their coprophagous insects must also be introduced; special attention should therefore be paid to any new species having these habits. Of course many of the decaying-vegetable feeders will take to dung under certain circumstances.

Sphæridium bipustulatum.	Homalota atramentaria.
Cercyon <i>obsoletum</i> .	— melanaria.
Onthophagus <i>vacca</i> .	— nigra.
— <i>taurus</i> .	Philonthus sordidus.
Aphodius granarius.	— scybalarius.
— lividus.	Oxytelus sculptus.
Alcochara nitida.	— complanatus.
— puberula.	— nitidulus.

(5) Species introduced with pine trees, as in Madeira. In the Canaries, where pines are apparently indigenous, the insects are all cognate species.

Pissodes notatus.	Hylurgus ligniperda.
Hylastes <i>ater</i> .	Homalium pusillum.

\* As an exemplification of the above, it may be interesting to mention that the conditions under which these species thrive seem to have culminated in a small shed used for picking fowls near Horta in Fayal. Under the feathers, &c., were found ten of the species here enumerated, which, however, occurred nowhere else in the islands.



(6) Species found in water. These are very few in these islands; why, it is difficult to say; but with the exception of one *Agabus*, which may be new, all are the most ordinary European forms. The three new to the Atlantic fauna are probably introduced.

*Hydroporus planus.* *Philhydrus lividus.*  
*Colymbetes pulverosus.*

(7) Species introduced with garden plants, &c., about cultivated ground.

*Melanotus dichrous?* *Sitones flavescens.*  
*Athous obsoletus?* — lineatus.  
*Ceuthorhynchus nigroterminatus.* — gressorius.  
*Bruchus pisi.*  
*Hypera variabilis.* *Psylliodes chrysocephala.*  
*Otiorhynchus scabrosus.* *Haltica ampelophaga.*  
 — *sulcatus.*

(8) Of the eighty-six European species remaining, the following fourteen are probably mere recent introductions:—

*Calathus mollis.* *Saprinus semistriatus.*  
*Bradycellus distinctus.* *Ptilinus pectinicornis.*  
*Phalacrus coruscus.* *Tomicus saxensis.*  
 — *consimilis.* *Hypoborus ficus.*  
*Nitidula obsoleta.* *Coccinella 7-punctata.*  
*Anthrenus varius.* *Chilocorus bipustulatus.*  
*Saprinus cærulescens.* *Seymnus minimus.*

(9) Sixteen species remain, now brought forward as new to the Atlantic fauna, concerning whose origin I am not able to offer any conjecture:—

*Licinus brevicollis.* *Meligethes incanus.*  
*Anchomenus parum punctatus.* *Psammodius plicicollis.*  
*Pterostichus vernalis.* *Dolichosomus nobilis.*  
*Harpalus ruficornis.* *Mesites tardii.*  
 — *griseus.* *Coccinella 11-punctata.*  
*Stenolophus brunripes.* *Lithocharis ripicola.*  
 — *luridus.* — *apicalis.*  
*Corytholophus sublævipennis.* *Trogophloeus subtilis.*

(10) M. Drouet enumerates a few species which have escaped Mr. Godman, but which he appears to have found in some numbers:—

*Calathus flavipes.* *Anobium tomentosum.*  
*Saprinus rugifrons.* *Xantholinus glabratus.*  
*Coccinella variabilis.*

(11) We then get the following thirty-two as being found in the three Atlantic groups and South Europe, and representing perhaps the remains of a common fauna:—

*Dromius maurus.* *Anchomenus albiges.*  
*Pristonychus complanatus.* — *marginatus.*

Stenolophus teutonus.	Opatrum hispidum.
Tachys 4-signatus.	Anthicus hispidus.
Parnus prolificornis.	Homalota longula.
Dactylosternum abdominale.	— coriaria.
Cercyon littorale.	Habrocerus capillaricornis.
— centromaculatum.	Conosomus sericeus.
Saprinus apriciarius.	Philonthus nigrutilus.
— dimidiatus.	Xantholinus hesperius.
Psammodius porcicollis.	Lithocharis ruficollis.
— sabulosus.	— debilicornis.
Mezium sulcatum.	Stenus guttula.
Rhizobius litura.	Platystethus spinosus.
Blaps gages.	Trogophloeus riparius.
Hegeter tristis.	— corticinus.

Their European connexion being thus analyzed, it only remains to trace their affinities to the other Atlantic groups, and first with Madeira.

The two have in common 140 species, or very nearly three-fourths of the entire fauna: (1) 97 of these, however, are common to the Azores, Madeira, the Canaries, and Europe, and are hence unessential; (2) 26 are found in Madeira and Europe, and of these 17 may be considered introduced into both islands; the remaining 9 indigenous species are as follows:—

Pterostichus nigerrimus.	Bembidium rufescens.
Amara trivialis.	Phlæcophagus spadix.
Anisodactylus binotatus.	Homalota luridipennis.
Harpalus rotundicollis.	Sunius gracilis.
— distinguendus.	

(3) Eight are found in Madeira and the Canaries, but not in Europe as yet, viz. :—

Cercyon inquitum.	Cryphalus aspericollis.
Læmophloeus clavicollis.	Apion chalybeipenne.
Paramecosoma simplex.	Psylliodes vehemens.
Corticaria maculosa.	Silaria proteus.

These represent the purely Atlantic species; but the *Paramecosoma* alone has strong claims to be considered really peculiar, or "autochthonous," to use Mr. Wollaston's expression.

(4) Eight also have been found hitherto in the Azores and Madeira only:—

Trechus fimicola.	Scymnus durantæ.
Bembidium schmidtii.	Homalota oblique-punctata.
Malachius militaris.	Philonthus proximus.
Phlæcophagus tenax.	Homalium clavicorne.

These show the strong connexion with Madeira, since five of these are modified into insular species in the Canaries, but reach here

unchanged; the *Homalium* and *Phlæophagus* are the only two "autochthones."

Their connexion with the Canaries is very slight and little marked, 114 species only being common to the two groups. Of these—

(1) Ninety-seven are, as before, universal.

(2) Seven are common also to Europe; and four of them, at least, are introduced.

*Hydroporus planus.*

*Gyrinus dejeani.*

*Dermestes frischii.*

*Trachyscelis aphodioides.*

*Anthicus humilis.*

*Ocytus olens.*

*Homalota nigra.*

(3) Eight are, as before, common to Madeira.

(4) Two only remain as peculiar to the Canaries and Azores; and of these one (*Anobium villosum*) is a mere introduction; but the other (*Calosoma azoricum*) is a very singular insect, representing the *C. maderæ* of Madeira, and extending even to the Cape de Verde Islands. The Canaries are remarkable for possessing both forms, though in separate islands.

With the little uninhabited rocks called the Salvages, the Azores have two species in common (*Harpalus rotundicollis* and *Phaleria bimaculata*), both occurring in some abundance.

But the most remarkable portion of the Azorean fauna remains yet to be noticed, viz. those species which it has in common with America. These are—

*Æolus melliculus.*

*Monocrepidius posticus.*

*Teniotes scalaris.*

The *Heteroderes azoricus* also is probably a mere modification of an American species, which has succeeded in establishing itself here. The *Teniotes* also appears thoroughly naturalized. Whether these species owe their introduction to colonization and human intercourse or to natural means must remain an open question. For the former much is to be said. An open and continual communication exists between S. Miguel and Bahia; and Mr. Godman informs me that very large quantities of plants and trees are imported to form gardens. This latter fact may account for the numerous European species also. On the other hand, the occurrence of *Clytus erythrocephalus* on the desolate rocks of the Salvages, where it could not have been introduced, suggests that, after all, the Gulf Stream may have been the origin of these peculiar species. This is borne out by the fact that they are all wood-feeding species, so that they would readily come in logs in the pupa state without injury; and by the fact that the *Het. azoricus* must have been introduced at a period previous to the Portuguese colonization to account for its abundance in several islands and its modified characters. Some light may be thrown on this also by the occurrence of *Cynthia huntera* in the Canaries.

Further, an African connexion is suggested by the *Staphylinus hesperus* (a close ally of a Cape species), and by the very remarkable

*Elastrus dolosus*, which has congeners only in Madagascar, but in external form simulates some Cape *Elaters* so as to be undistinguishable except by a close examination. This Madagascar connexion is found also in the Cape de Verde Islands, which have two or three species in common with it.

To sum up these affinities numerically, we find that of the 213 species 168 are European, 18 Atlantic, and 23 peculiar—or that 168 are common to Europe, 140 to Madeira, and 114 to the Canaries. The proportions of the families vary a little from those observed in Madeira and the Canaries.

	Azores.	Mad. et Can.
Brachelytra . . . . .	48	215
Necrophaga . . . . .	38	219
Rhynchophora . . . . .	27	282
Geodephaga . . . . .	27	188
Priocerata . . . . .	16	135
Cordylocerata . . . . .	16	64
Heteromera . . . . .	15	172
Philhydrida . . . . .	8	29
Pseudotrimeria . . . . .	7	30
Eucerata . . . . .	5	22
Phytophaga . . . . .	3	64

The most notable displacements here are the very great absence of *Phytophaga*, the lowering of the standard of *Rhynchophora*, always much the largest group in the other islands, and the singular paucity of *Heteromera*. The large development of *Necrophaga* and *Brachelytra* is due to their containing many introduced species. All this seems to show that, on the hypothesis of a connected continent, the fauna of the Azores was drawn from a much more northern source than that of the other islands. This is particularly evinced by the absence of *Heteromera*. The paucity of water-beetles, notwithstanding their rainy condition, is less easily accounted for; but the same occurs in Madeira, where previously to the destruction of the forests there must have been water enough, and yet even the universal *Gyrinus dejeani* does not occur there. A more restrained type of fauna is indicated by the solitary representatives of the Atlantic genera (*Tarphius* &c.), which further south develop numerous forms in each island; it may, indeed, have been that the Azores formed almost the western boundary of land in this direction.

This brief sketch will show how full of interest the subject is, and how much yet remains to be done even in the groups apparently most explored. I shall now enumerate in order the 213 species at present known as inhabitants of these islands, and describe those which appear to be new, reproducing the novelties already described by MM. Drouet and Morelet.

#### 1. CALOSOMA AZORICUM, Heer.

Under stones in S. Miguel, Terceira, and Santa Maria, but rarely. This agrees precisely with the specimens recorded by Mr. Wollaston from Lanzarote in the Canaries, and forms the only link between

these two groups; it is not, however, confined to them, as it has since been brought from the Cape de Verde Islands. M. Drouet has erroneously identified it with *C. olivieri*, Dej.

2. *BLECHRUS MAURUS*, Sturm.

Under stones in S. Miguel, not common. None of the examples agree with the allied *B. glabratus*; but this form will also not improbably occur.

3. *LICINUS BREVICOLLIS*, Dej.

Abundant on the sand-hills at Praya in Terceira. New to the Atlantic fauna, but widely spread in the Mediterranean district. Its localization suggests that it may be a ballast importation.

4. *PRISTONYCHUS COMPLANATUS*, Dej.

Universal in the various Atlantic islands, including even St. Helena, and common also in parts of South Europe. Specimens are before me from S. Miguel and Flores; but M. Drouet records it from all the islands.

5. *CALATHUS FLAVIPES*, Payk. (*FULVIPES*, Gyll.).

Recorded by M. Drouet from all the islands. There is nothing in Mr. Godman's material at all resembling it.

6. *C. MOLLIS*, Marsh.

One specimen from the borders of the Lagoa das Furnas, S. Miguel. M. Drouet records it also from Pico, saying that it is common under stones near the sea. The single specimen before me differs a little from the English form, being larger and with the elytra more deeply striate. The occurrence of two European species only of a genus which almost seems characteristic of the Canaries and Madeira is very remarkable.

7. *ANCHOMENUS APTINOIDES*, Tarnier.

I have not seen this species, described on a unique specimen by M. Tarnier. It would appear to be allied to *A. nichollsi*, Woll., from the Canaries.

8. *A. ALBIPES*, Fabr.

Common in damp places in S. Miguel. Also not rare in Madeira; but in the Canaries it is confined to Fuerteventura.

9. *A. MARGINATUS*, Linn.

Margins of the Lagoa das Furnas, S. Miguel, common; M. Drouet adds Terceira. It is common in both the other Atlantic groups.

10. *A. PARUMPUNCTATUS*, Fabr.

New to the Atlantic fauna. It is not rare in S. Miguel, and also (*teste* Drouet) in Fayal and Terceira.

11. *PTEROSTICHUS NIGERRIMUS*, Dej.

Under stones on the sand-hills at Praya, Terceira, rare. It occurs also in Madeira and South Europe, and is probably a race of *P. aterrimus*, Hb.

12. *P. VERNALIS*, Pz.

New to the Atlantic fauna. M. Drouet records it from all the islands; but I have only seen it from S. Miguel, where it appears to be rare.

13. *AMARA TRIVIALIS*, Gyll.

S. Miguel and Flores; but also in all the islands, according to M. Drouet. This insect ranges over the whole northern hemisphere.

14. *ANISODACTYLUS BINOTATUS*, Fabr.

S. Miguel and Terceira. M. Drouet says that it occurs in all the islands.

15. *HARPALUS (OPHONUS) ROTUNDICOLLIS*, Fairm.

Common at Angra, Terceira, and Santa Cruz in Flores. M. Drouet records one specimen from S. Miguel. Previously one was known from Madeira and one from the Salvages; hence its occurrence in some numbers is interesting.

16. *H. (PSEUDOPHONUS) RUFICORNIS*, Fabr.

This species abounds in S. Miguel under stones, also in the other islands (Drouet). It is new, however, to the Atlantic fauna.

17. *H. (PSEUDOPHONUS) GRISEUS*, Panz.

Found rarely with the preceding, of which I am disposed to consider it a variety. The only two specimens I have seen are from Terceira and Fayal respectively. They agree with undoubted European specimens; but I cannot think their separation justifiable.

18. *H. DISTINGUENDUS*, Duft.

This common Madeira insect is probably universal in the Azores. I have seen it from S. Miguel, Terceira, and Fayal.

19. *STENOLOPHUS TEUTONUS*, Schrank.

S. Miguel, Terceira, and Fayal. Probably universal, as in the Canaries.

20. *S. (ACUPALPUS) BRUNNIPES*, Sturm.

Not uncommon in S. Miguel, Terceira, and Flores; also in S. Maria, according to M. Drouet. It takes the place of *St. dorsalis*, which is common in Madeira and the Canaries, and of which I regard it as a black variety. Its occurrence unmixed with the type form is of considerable interest.

21. *S. (ACUPALPUS) LURIDUS*, Dej.

On the coast in S. Miguel and Terceira. This is new to the Atlantic fauna; and it is very curious that the pale form should occur, whereas the dark form of the preceding is present.

22. *BRADYCELLUS DISTINCTUS*, Dej.

One specimen only, from the Lagoa das Furnas, S. Miguel. It is new to the Atlantic fauna. Compared with English examples, the elytra are more ventricose and have the interstices perceptibly flatter. If further material should show that it is really distinct, I shall propose the name "*azoricus*" for it.

23. *TRECHICHUS FIMICOLA*, Woll.

One specimen, from Fayal. This does not quite agree with Madeiran types in the British Museum, being distinctly paler, and with more faintly striate elytra. Further material can alone decide whether these characters are permanent or not.

24. *TACHYS 4-SIGNATUS*, Duft. (*CURVIMANUS*, Woll.).

Not rare in S. Miguel, Terceira, and Fayal. Those from Terceira are paler and more faintly striate. It is common in South Europe, Madeira, and the Canaries; at least I am unable to distinguish between specimens from Spain and the latter locality.

25. *BEMBIDIUM (OCYS) RUFESCENS*, Fabr. (*DUBIUM*, Woll.).

S. Miguel, Fayal, and Flores; also in Santa Maria (Dronet). A careful comparison of it with English specimens and with Mr. Wollaston's type in the British Museum has convinced me that they should be referred to one species.

26. *B. (LOPHA) SCHMIDTII*, Woll.

This insect, which assumes a different form in South Europe, Madeira, and the Canaries, here appears to approximate most closely to the Madeiran race; the coloration, however, is darker, the testaceous patches being less developed. It is not common in S. Miguel and Fayal.

27. *B. (LEIA) HESPERUS*, n. sp.

Two examples only, under marine rejectamenta at Praya in Terceira. It is most nearly allied to *B. latum*, Brullé.

28. *HYDROPORUS PLANUS*, Fabr.

Not rare in ponds in Terceira, Fayal, and Flores. It is darker than the ordinary English form, but I am unable to detect any tangible differences.

29. *COLYMBETES (RHANTUS) PULVEROSUS*, Sturm.

New to the Atlantic fauna, but is probably introduced; and when one reflects on the introduction of goldfish, it is easy to see that  
PROC. ZOOL. SOC.—1867, No. XXIV.

some water insects at least must have accompanied them. The specimens before me are darker than English ones, a circumstance probably to be accounted for by the method of preservation adopted.

30. *AGABUS GODMANNI*, n. sp.

This fine species is by no means rare in Terceira, Fayal, and Flores; and it is with some doubt that I have ventured to regard it as new; but it agrees with no published description that I have access to.

31. *GYRINUS DEJEANI*, Brullé.

Common in Flores and Santa Maria, as also in Teneriffe, though not in Madeira. M. Drouet in his brief list records no Water-beetles.

32. *PARNUS PROLIFERICORNIS*, Rossi.

S. Miguel and Santa Maria; also in Graciosa and Flores (Drouet).

33. *PHILHYDRUS LIVIDUS*, Forst.

Not rare in Terceira, but new to the Atlantic fauna, representing the *Ph. melanocephalus* of the other groups.

34. *SPHÆRIDIDIUM BIPUSTULATUM*, Fabr.

Common in S. Miguel, Santa Maria, Terceira, and Flores, and is probably, as all the dung species may be presumed to be, universal.

35. *DACTYLOSTERNUM ABDOMINALE*, Fabr.

Two specimens, under dung in Fayal. It is somewhat curious that this species should be so rare here, occurring as it does in the Mediterranean, Madeira, and the Canaries.

36. *CERCYON OBSOLETUM*, Gyll.

At Ponte Delgada, S. Miguel, and also in the higher parts of the island, but not common.

37. *C. LITTORALE*, Gyll.

Fayal and S. Miguel; one specimen only from each. This species appears to decrease in abundance southwards.

38. *C. INQUINITUM*, Woll.

One specimen, at Ponte Delgada, S. Miguel. A Madeiran insect, but probably of wider range in reality.

39. *C. CENTROMACULATUM*, Sturm.

Flores and S. Maria, not common. The name "*nigriceps*, Marsh.," has been adopted by some for this species. The description is inapplicable; and he has in his collection placed specimens to represent four different species; hence he could not have had a very clear idea of its characters.



40. *CORYTHOLOPHUS SUBLÆVIPENNIS*, Duv.

Four or five specimens, from flowers at Horta, Fayal. It seems to agree sufficiently with the European species described by Duval, and is like our common species, but paler and obsoletely punctate.

41. *SERICODERUS LATERALIS*, Gyll.

S. Miguel and Fayal, in refuse.

42. *PTENIDIUM APICALE*, Sturm.

Fayal, in a shed, among feathers &c., with several other insects of the same imported class.

43. *PHALACRUS CORUSCUS*, Panz.

One specimen, from Santa Maria. It occurs also in the Canaries, but not in Madeira.

44. *P. (OLIBRUS) CONSIMILIS*, Marsh.

Abundant in S. Miguel and Fayal; probably an introduced species.

45. *CARPOPHILUS DIMIDIATUS*, Fabr.

From decaying oranges near Ponte Delgada in S. Miguel.

46. *C. MUTILATUS*, Fabr.

Two specimens, with the preceding; both seem nearly cosmopolitan.

47. *MELIGETHES INCANUS*, Er.

One, from flowers at Horta in Fayal. It was identified by M. Brisout de Barneville with the above species; and I think the *M. tristis* of Mr. Wollaston's work must also be referred to it.

48. *NITIDULA 4-PUSTULATA*, Fabr.

One specimen, from Ponte Delgada, S. Miguel; clearly introduced.

49. *N. (OMOSITA) COLON*, L.

In S. Miguel and Fayal, but always in the vicinity of towns.

50. *N. (EPURÆA) OBSOLETA*, Fabr.

S. Miguel, Terceira, and Fayal, under bark and refuse &c. In comparison with Madeiran specimens it would seem to be more strongly punctured, and with the thorax just perceptibly more emarginate in front.

51. *MONOTOMA 4-FOVEOLATA*, Aubé.

In the fowl-shed at Horta, Fayal, abundantly.

52. *M. SPINICOLLIS*, Aubé.

Near Horta, Fayal, rarely.

53. *M. QUADRICOLLIS*, Aubé.

Ponte Delgada, S. Miguel, one specimen only.

54. *TARPHIUS WOLLASTONI*, n. sp.

In dead *Euphorbia*-stems near Santa Cruz, Flores, not rare. One of the very few remnants of the old laurel-fauna.

55. *AGLENUS BRUNNEUS*, Gyll.

In the fowl-shed at Horta, Fayal, abundantly.

56. *LÆMOPHLEUS CLAVICOLLIS*, Woll.

One specimen, at Ponte Delgada, S. Miguel, but probably more widely distributed.

57. *SILVANUS ADVENA*, Waltl.

At Horta, Fayal, in the fowl-shed, not rare.

58. *NAUSILIUS DENTATUS*, Marsh.

One specimen, in sugar at Santa Cruz, Flores.

59. *CRYPTOPHAGUS CELLARIS*, Scop.

In the fowl-shed at Horta, Fayal, rare.

60. *C. DENTATUS*, Hb.

One specimen with the preceding, and one taken by sweeping in S. Miguel.

61. *C. AFFINIS*, Sturm.

Two specimens; one from S. Miguel, the other from Terceira.

62. *C. PUNCTIPENNIS*, Bris.

One specimen, at Santa Cruz, Flores. This was named for me by M. Brisout himself, and is a species recently described from France.

63. *C. SAGINATUS*, Er.

Santa Cruz, Flores, in houses.

64. *C. SCHMIDTII*, Er. ?

One specimen, taken with the preceding, appears to me not to differ from the European species. It is new to the Atlantic fauna.

65. *PARAMECOSOMA SIMPLEX*, Woll.

Not rare under refuse in S. Miguel and Fayal. This species has not yet occurred in Europe, though pretty common in all the three groups of islands.

66. *ATOMARIA MUNDA*, Er.

In the fowl-shed at Horta, Fayal, abundantly.

67. *EPISTOMUS GYRINOIDES*, Marsh.

With the preceding, also under refuse in S. Miguel.

68. *LATRIDIUS MINUTUS*, L.

One specimen only, at Santa Cruz, Flores. This insect positively swarms in Madeira and the Canaries.

69. *L. NODIFER*, Westw.

In decaying oranges at Ponte Delgada, San Miguel—and also at Horta, Fayal, but rarely. This insect has been hitherto confined to England, where it was some years ago of the utmost rarity; now, however, it is universally spread over the country, and in the greatest abundance. It is probably a mere importation into the Azores, but is not without significance.

70. *CORTICARIA MACULOSA*, Woll.

At Ponte Delgada, S. Miguel, three specimens only.

71. *C. FULVA*, Com.

Two specimens only, in S. Miguel and Fayal respectively, and both probably introduced.

72. *C. SERRATA*, Gyll.

One specimen, in the fowl-shed at Horta, Fayal.

73. *C. CURTA*, Woll.

S. Miguel and Fayal, under refuse. This species occurs in many parts of Europe, and is scattered in collections as *C. truncatella*, Mannh.

74. *TYPHEA FUMATA*, L.

Abundant in S. Miguel and Fayal, under refuse.

75. *MYCETEA HIRTA*, Marsh.

Also not rare in S. Miguel and Fayal, in out-houses &c.

76. *DERMESTES FRISCHII*, Kug.

S. Miguel, Terceira, and Fayal, in dead fish &c. All the specimens I have examined are referable to this species; but its congener, *D. vulpinus*, must also occur.

77. *ANTHRENUS VARIUS*, Fabr.

Very common in flowers in Fayal and Flores, and very variable in size and markings.

78. *ACRITUS MINUTUS*, Hb.

In garden-refuse at Ponte Delgada, S. Miguel, rarely.

79. *CARCINOPS PUMILIO*, Er. (*14-STRIATUS*, Steph.).

One specimen, at Horta, Fayal. Mr. Wollaston has employed the

Stephensian name to designate this species, which, however, is posterior to Erichson's by five years.

80. *SAPRINUS CÆRULESCENS*, Ent. H. (*SEMIPUNCTATUS*, Fab.).

One specimen, from Ponte Delgada, S. Miguel, has been sent to Mr. Godman since his return. M. Drouet records it from Terceira. It is new to the Atlantic fauna. As the Fabrician insect was different from Herbst's (whose name he quotes), it is impossible to retain the name.

81. *S. SEMISTRIATUS*, Scriba (*NITIDULUS*, Fabr.).

S. Miguel, Fayal, and Terceira; also common throughout, according to M. Drouet. Scriba's name has eleven years of priority over that of Fabricius.

82. *S. APRICARIUS*, Er.

Abundant in Fayal, under dead fish.

83. *S. DIMIDIATUS*, Ill.

Abundant with the preceding; M. Drouet also records the species. It must be very close to *S. lobatus*, Woll., if not identical with it.

84. *S. RUGIFRONS*, Payk.

"Under stones on the sea-shore in Terceira."—*Drouet*. I have not seen any specimens of this species.

85. *ONTHOPHAGUS TAURUS*, Schreb.

Common in all the islands, and affording a good example of the rapid distribution of an insect in a congenial locality.

86. *O. VACCA*, Fabr.

One only, from Angra, Terceira. M. Drouet also records one.

87. *APHODIUS GRANARIUS*, L.

S. Miguel, Terceira, and Fayal, abundant.

88. *A. LIVIDUS*, Oliv.

Not rare in Terceira and Fayal.

89. *PSAMMODIUS SABULOSUS*, Muls.

One specimen only, from Praya, Terceira; probably, however, not rare.

90. *P. PLICICOLLIS*, Er.

New to the Atlantic fauna; two specimens were taken at Horta, Fayal.

91. *P. PORCICOLLIS*, Ill.

Abundant near Horta, Fayal,

92. *P. CÆSUS*, Pr.

Several specimens, from Flores, Terceira, and Fayal.

93. *Trox scaber*, L.

Abundant in the fowl-shed at Horta, Fayal; but clearly introduced. In Madeira a single specimen only has been noticed.

94. *Heteroderes azoricus*, Tarn. (*atlanticus*, Cand.). (Pl. XXIII. fig. 2.)

Very abundant under stones, and probably universal. I have seen specimens from S. Miguel, Flores, Terceira, Fayal, and Corvo. M. Drouet also records it from Santa Maria. Mr. E. W. Janson, to whom I am indebted for a careful examination of this and the following *Elateridae*, informs me that it is nearly allied to *H. rufangulus*, Gyll., of Brazil. This and the remaining *Elateridae* are entirely new to the Atlantic fauna.

95. *Æolus melliculus*, Cand. (*moreleti*, Tarn.).

Mr. Janson informs me that the specimens taken by Mr. Godman are not distinguishable from the original Dejeanian types of the above South American species. It is very widely spread from Carthagera to Buenos Ayres, according to Candèze. The *Æ. moreleti*, Tarnier (1860), is slightly different in coloration; but of the few specimens before me no two are precisely alike. They were all taken at Horta, Fayal, under dead weeds.

96. *Monocrepidius posticus*, Erichs.

A single specimen taken by Mr. Godman in Fayal is referable, as Mr. Janson informs me, to the above common Brazilian species.

97. *Elastrus dolosus*, n. sp.

One specimen only, in S. Miguel. This is probably the *Ampedus*, sp.?, of M. Drouet's catalogue.

98. *Melanotus dichrous*, Erichs.?

Mr. Janson refers a single specimen taken in Santa Maria to this South European species.

99. *Athous obsoletus*, Ill.?

Three specimens taken in a garden at Ponte Delgada, S. Miguel, appear to be identical with the above species, which is an inhabitant of South Europe, and is new to the Atlantic fauna.

100. *Attalus miniatocollis*, Tarnier.

Terceira and Fayal, common on flowers. M. Drouet records it from Santa Maria. It is very closely allied to the Canarian *A. ruficollis*, Woll.

101. *Malachus militaris*, Woll.

A single female specimen, from flowers near the Furnas. It differs

from Madeiran examples, communicated to me by Mr. Wollaston, by the form of the thorax, which in them is slightly narrowed behind and sinuate, whereas in this it is nearly quadrate; but the punctation is nearly identical.

102. *DOLICHOSOMUS NOBILIS*, Ill.

Probably universal, as Mr. Godman brought it from Terceira, S. Miguel, Fayal, Flores, and Corvo. M. Drouet also records it from Santa Maria. Its occurrence is somewhat remarkable, since in Madeira it is represented by the nearly allied *D. illustris*, Woll.

103. *OPILUS MOLLIS*, Linn.

One specimen, from a house in Ponto Delgada, S. Miguel. M. Drouet speaks of it as common.

104. *PTINUS TESTACEUS*, Oliv.

Two specimens in the fowl-shed at Horta, Fayal.

105. *MEZIUM SULCATUM*, Fabr.

In Terceira, Fayal, and Santa Maria, not rare. This species is probably universal, being very abundant in Madeira and the Canaries, where it seems truly indigenous.

106. *ANOBIUM DOMESTICUM*, Fourc. (*STRIATUM*, Oliv.).

Terceira and Santa Maria, in houses. M. Drouet says that it occurs throughout the group.

107. *A. VILLOSUM*, Brullé?

M. Drouet records *A. tomentosum* as common throughout the group, referring probably to the above Canarian species; but I have seen no specimens of it as yet.

108. *A. PANICEUM*, Linn.

From Flores only; but doubtless universal in towns.

109. *PTILINUS PECTINICORNIS*, Linn.

In houses at the Furnas and other places in S. Miguel, but clearly introduced.

110. *HYLASTES ATER*, Fabr.

From pine trees at Horta, Fayal. New to the Atlantic fauna.

111. *HYLURGUS LIGNIPERDA*, Fabr.

With the preceding, but more abundant.

112. *TOMICUS SAXESENSI*, Ratz.

In abundance in one tree in S. Miguel.

113. *HYPŒORUS FICUS*, Er.

Abundant in a dead fig-tree at Horta, Fayal. This is evidently

introduced from the Mediterranean, where it takes the place of the Canarian genus *Liparthrum*. It is new to the Atlantic fauna.

114. *CRYPHALUS ASPERICOLLIS*, Woll.

With the preceding, but more rarely. This pretty little insect is universal in the Atlantic groups, extending even to St. Helena.

115. *MESITES TARDII*, Curt.

From *Erica*-stems in S. Miguel, and afterwards from a dead *Euphorbia* in Flores; the latter locality, however, must be merely accidental. After a very careful comparison with English and Irish specimens, I am unable to detect any difference between them, improbable as such identity would at first appear to be.

116. *PHLÆOPHAGUS SPADIX*, Hb. (*SULCIPENNIS*, Woll.).

Under rubbish at Horta, Fayal; it occurs also in Madeira, and was described by Mr. Wollaston, who, however, expressed his opinion that it might prove to be only a geographical state of *P. spadix*. After comparing a large number of specimens, I think the characters pointed out by him shade away insensibly.

117. *P. TENAX*, Woll.

Taken pretty abundantly in an *Erica*-stem at the Furnas, S. Miguel, also in Fayal. The specimens before me differ from Madeiran types sent me by Mr. Wollaston in being less evidently punctate and more rugose on the elytra. The sculpture of this genus, however, is liable to considerable variation in this respect.

118. *P. VARIABILIS*, n. sp.

Common in S. Miguel, Fayal, Flores, and Corvo, and assuming a slightly different form in each island. It feeds on fig-trees and *Euphorbias*, in a manner analogous to the *P. laurineus*, Woll., and, like that, is more sparingly punctured when found on *Euphorbias*.

119. *CALANDRA GRANARIA*, L.

Two specimens from Terceira.

120. *C. ORYZÆ*, L.

Very abundant in grain in S. Miguel, Terceira, and Fayal.

121. *CEUTHORHYNCHUS NIGRO-TERMINATUS*, Woll.

Not rare on flowers in S. Miguel and Fayal. It occurs also in Europe, and even in England.

122. *ACALLES DROUETII*, n. sp.

This beautiful species was taken in tolerable numbers from some decayed *Euphorbia*-stems in Flores.

123. *APION CHALYBEIPENNE*, Woll.

By sweeping in Fayal and Flores, not rare.

124. *PISSODES NOTATUS*, Fabr.

From pine trees at Horta, Fayal; but evidently introduced.

125. *LAPAROCERUS AZORICUS*, Drouet.

M. Drouet described this on specimens from Fayal; Mr. Godman, however, found it abundantly in S. Miguel under stones. It represents a curious form of the genus, differing from the Canarian species considerably in aspect.

126. *OTIORHYNCHUS SCABROSUS*, Marsh.

Beaten from hedges at Ponta Delgada, S. Miguel. New to the Atlantic fauna.

127. *O. SULCATUS*, Fabr.

One specimen, from the Lagoa das Furnas. M. Drouet records it from Terceira. It is new to the Atlantic fauna, though doubtless introduced.

128. *HYPERA VARIABILIS*, Hb.

Under refuse in Terceira, not common.

129. *ASYNONYCHUS GODMANNI*, n. sp.

Two specimens of this new and interesting form were beaten from brambles at Horta, Fayal.

130. *NEOCNEMIS OCCIDENTALIS*, n. sp.

One specimen only was swept from flowers in Santa Maria by Mr. Brewer.

131. *SITONES LINEATUS*, L.

In S. Miguel, Terceira, and Fayal, common. M. Drouet records it also from Pico.

132. *S. FLAVESCENS*, Marsh.

One specimen only, by sweeping in Santa Maria. This is a curious variety with a triangular pale sutural patch, not rare in South Europe. It is, however, new to the Atlantic fauna.

133. *S. GRESSORIUS*, Fabr.

Abundant in Terceira and Fayal, in cultivated grounds.

134. *BRUCHUS PISI*, L.

Abundant in gardens in S. Miguel and Flores.

135. *B. AZORICUS*, n. sp.

In S. Miguel, Terceira, and Fayal, not rare in flowers. This species is probably not indigenous; but I have been unable to identify it with any described form.



136. *B. BREWERI*, n. sp.

Two specimens were taken by Mr. Brewer in Santa Maria.

137. *HYLOTRYPES BAJULUS*, L.

Several specimens, in and about houses at Ponte Delgada, S. Miguel.

138. *CLYTUS 4-PUNCTATUS*, Fabr.

In a chestnut stump at Ponte Delgada, S. Miguel. It was accompanied by the variety *C. griseus*, where the ochreous pubescence is replaced by pale grey. The occurrence of this species here throws light on the question discussed by Mr. Wollaston as to its occurrence in the Canaries. It would appear not improbable that Mr. Webb did in reality obtain specimens either in Madeira or in the Canaries; but the *C. webbii* is obviously a mere variety of the type form.

139. *GRACILIA PYGMÆA*, Fabr.

One specimen, in a house at Horta, Fayal.

140. *TENIOTES SCALARIS*, Fabr.

This fine Brazilian species appears to have made good its position in these islands, where it does considerable damage to the fig-trees. It is most abundant in S. Miguel; but M. Drouet states that it occurs also in Fayal and Terceira.

141. *LEPTURA*, sp. ?

This very European-looking *Leptura* was sent to Mr. Godman after his return, but arrived in so fragmentary a condition that it is almost impossible to identify it with certainty. It does not appear, however, to agree with any European species exactly.

142. *HALTICA AMPELOPHAGA*, Guér.

Abundant on the vines in Santa Maria, but has been clearly introduced; it is, however, curious that it should not have found its way to Madeira or the Canaries.

143. *PSYLLIODES CHRYSOCEPHALA*, L.

Apparently nearly universal, being found in S. Miguel, Terceira, Fayal, and Flores. It is also common in Madeira.

144. *P. VEHEMENS*, Woll.

Not rare in Fayal, and probably in the other islands also. It is very abundant in the other Atlantic groups.

145. *COCCINELLA 7-PUNCTATA*, L.

One specimen only, from Santa Maria.

146. *C. 11-PUNCTATA*, L.

From S. Miguel, Terceira, and Flores; also in Santa Maria, according to Drouet.

147. *C. VARIABILIS*, Fabr.

M. Drouet states this insect to be common throughout the group; no trace of it, however, exists in the material now before me; yet it is impossible to believe that so well-known a species can have been confused with anything else.

148. *CHILOCORUS BIPUSTULATUS*, L.

One specimen only, from Santa Maria.

149. *SCYMNUS DURANTE*, Woll.

Not rare on flowers in Terceira and Fayal. This species has been hitherto considered peculiar to Madeira, and is represented by a cognate form in the Canaries.

150. *S. MINIMUS*, Rossi.

A few specimens have occurred in Fayal and Santa Maria.

151. *RHIZOBIUS LITURA*, Fabr.

Very abundant in S. Miguel, Fayal, and Terceira, and presenting, as usual, considerable variation in colour.

152. *BLAPS GAGES*, L.

S. Miguel and Fayal, in gardens, cellars, &c., not rare. This has been found on the Salvages.

153. *B. SIMILIS*, Latr.

Very common in S. Miguel, Fayal, and Flores.

154. *B.*, sp.?

Two specimens were taken under a stone near the Lagoa das Farnas. I am not able to refer this to any described species, but am unwilling to add to the confusion already existing in the group by adding another doubtful species.

155. *HEGETER TRISTIS*, Fabr.

S. Miguel, Terceira, and Fayal, but rare. This insect is excessively abundant in Madeira and the Canaries.

156. *OPATRUM HISPIDUM*, Brullé.

Abundant in S. Miguel, Terceira, and Fayal, and probably universal.

157. *HELOPS AZORICUS*, n. sp.

Under the bark of a poplar tree at the Furnas, S. Miguel. This is very near one of the Madeiran species, but not, I think, identical with it.

158. *PHALERIA BIMACULATA*, Herbst.

Abundant under dead fish at Horta, Fayal. M. Drouet records

the *P. cadaverina* from Terceira and S. Miguel, but he evidently means the present species.

159. *TRACHYSCELIS APHODIOIDES*, Latr.

One specimen only, on the sea-shore at Horta, Fayal.

160. *TRIBOLIUM FERRUGINEUM*, Fabr.

Recorded by M. Drouet from Santa Maria; it is a cosmopolitan insect, and hence of little interest.

161. *TENEBRIO OBSCURUS*, Fabr.

In S. Miguel, Santa Maria, and Graciosa, in bake-houses &c.

162. *ALPHITOBIVS PICEUS*, Oliv.

One specimen, with the preceding, from S. Miguel.

163. *ANASPIS (SILARIA) PROTEUS*, Woll.

Abundant on flowers at Fayal. M. Drouet records *A. humeralis*, Fabr., from Santa Maria and S. Miguel; but I feel no doubt that he alludes to this species, which swarms in Madeira and the Canaries, and is very closely allied to a South European form, if not identical with it.

164. *ANTHICUS FLORALIS*, L.

One specimen of this common insect has occurred in Fayal.

165. *A. HUMILIS*, Laf.

Not rare round the lake at Praya, Terceira.

166. *A. HISPIDUS*, Rossi.

Under refuse in S. Miguel and Flores.

167. *FALAGRIA OBSCURA*, Grav.

Not common, but found in S. Miguel, Fayal, and Santa Maria.

168. *ALEOCHARA NITIDA*, Grav.

Abundant in dung in S. Miguel, Terceira, Fayal, and Flores.

169. *A. PUBERULA*, Klug.

Only one specimen, from dung in Fayal.

170. *HOMALOTA OBLIQUEPUNCTATA*, Woll.

Several specimens, from the margins of the Lagoa das Farnas. It agrees almost exactly with the Madeiran specimens; but the oblique markings are less evident.

171. *H. LURIDIPENNIS*, Mannh.

One specimen, taken near the Farnas in S. Miguel.

172. *H. LONGULA*, Heer.

Found, but very rarely, in the bed of a stream in Fayal.

173. *H. ATRICILLA*, Er. (*FLAVIPES*, Thoms.).

One specimen, from the coast at Ponte Delgada, S. Miguel. This species is new to the Atlantic fauna, and is interesting as showing the wide distribution of these sea-weed infesting forms.

174. *H. PUTRESCENS*, Woll. ?

From Flores, under refuse. These are not in good condition; but appear to be near Mr. Wollaston's species. They will almost certainly prove to be European also.

175. *H.*, sp. ?

S. Miguel, under refuse.

176. *H. CORIARIA*, Kraatz ?

Three specimens, from S. Miguel. This and the preceding are both females, and I am unable to identify them satisfactorily. Both, however, appear to be European forms.

177. *H. NIGRA*, Kraatz ?

This little species, which is not rare in dung, appears to agree with the Canarian specimens referred to *H. nigra*, Kr., by Mr. Wollaston.

178. *H. ATRAMENTARIA*, Gyll.

Not rare in dung in S. Miguel, Fayal, and Flores, and probably universal.

179. *H. MELANARIA*, Sahlb.

Abundant in dung in Terceira, Fayal, and S. Miguel.

180. *XENOMMA MELANOCEPHALA*, n. sp.

Two specimens were obtained from the rubbish in S. Miguel. It is allied to the other Atlantic species, but is abundantly distinct from them.

181. *HABROCERUS CAPILLARICORNIS*, Grav.

Two specimens, from vegetable refuse in S. Miguel. This would appear to be a remnant of the old laurel-fauna.

182. *CONOSOMUS SERICEUS*, Latr. (*PUBESCENS*, Payk.).

A single mutilated specimen, from a Euphorbia-stem in Flores.

183. *CREOPHILUS MAXILLOSUS*, L.

Local, but occasionally abundant in S. Miguel and Fayal. M. Drouet records it also from Flores and Graciosa.

184. *STAPHYLINUS HESPERUS*, n. sp.

Abundant under stones near Terceira. It appears to be allied to a Cape species.

185. *OCYPUS OLENS*, Müll.

Common throughout the group, as it is also in the Canaries. Its absence from Madeira is a very curious and important fact.

186. *PHILONTHUS ÆNEUS*, Rossi.

Rare in S. Miguel and Fayal, and probably a mere introduction.

187. *P. SORDIDUS*, Grav.

In vegetable refuse and dung in S. Miguel and Fayal.

188. *P. UMBRATILIS*, Grav.

Tolerably common in S. Miguel and Fayal. M. Drouet records *P. ventralis*; but I am inclined to imagine he had the present species in view, notwithstanding the discrepancy in the thoracic punctures.

189. *P. SCYBALARIUS*, Nordm.

Two specimens taken in Fayal are referable to this species.

190. *P. NIGRITULUS*, Grav.

Very abundant in damp places in S. Miguel, Terceira, Flores, and Fayal.

191. *P. PROXIMUS*, Woll.

A single specimen, from a mountain-stream in Fayal. This species was supposed to be peculiar to Madeira, where it is very rare.

192. *XANTHOLINUS GLABRATUS*, Grav.

According to M. Drouet this was found by M. Hartung under stones in Graciosa. If this indication be correct, it is a species new to the Atlantic fauna. Possibly he may allude to the analogously coloured *X. marginalis*, Woll., hitherto found only in the Canaries.

193. *X. PUNCTULATUS*, Payk.

Not rare in S. Miguel and Terceira.

194. *X. HESPERIUS*, Er.

In San Miguel and Fayal under refuse.

195. *X. LINEARIS*, Oliv.

With the preceding, and also in Terceira.

196. *LEPTACINUS PUSILLUS*, Steph. (*LINEARIS*, Grav.).

Under refuse at Ponte Delgada, S. Miguel. Gravenhorst's name is inapplicable, having been adopted erroneously from Olivier.

197. *STILICUS AFFINIS*, Er.

With the preceding, but rarer.

198. *SUNIUS GRACILIS*, Payk. (*ANGUSTATUS*, Pk.).

Under stones in S. Miguel, Fayal, and Flores, not rare. Paykull's name "*angustatus*" was preoccupied; hence we should use the name he subsequently proposed for it.

199. *LITHOCHARIS RIPICOLA*, Kraatz.

New to the Atlantic fauna. One specimen only, in S. Miguel.

200. *L. APICALIS*, Kraatz.

Two specimens, at Horta, Fayal, under refuse. Also new to the fauna.

201. *L. OCHRACEA*, Grav.

One example only, from Fayal, with the preceding.

202. *L. RUFICOLLIS*, Kraatz (*TRICOLOR*, Woll.).

Not rare in S. Miguel, under stones &c. Mr. Wollaston has used Marsham's name for this species; but his description is quite valueless, and moreover he adopted the name erroneously from Fabricius.

203. *L. DEBILICORNIS*, Woll.

Not rare near Ponte Delgada, under refuse.

204. *STENUS GUTTULA*, Müll.

At the roots of grass round the mountain-streams in S. Miguel, but rare.

205. *PLATYSTETHUS SPINOSUS*, Er.

Under marine rejectamenta in Terceira and Fayal. These agree with the depauperated phase found in Madeira.

206. *OXYTELUS SCULPTUS*, Grav.

Very common in dung in S. Miguel, Terceira, Fayal, and Flores.

207. *O. COMPLANATUS*, Er.

With the preceding, and even more abundant.

208. *O. NITIDULUS*, Grav.

Widely spread over Terceira, Fayal, Flores, and S. Miguel.

209. *TROGOPHLEUS RIPARIUS*, Lac.

Common in S. Miguel, Fayal, and Flores, in damp places.

210. *T. CORTICINUS*, Grav.

One specimen, from a stream at Horta, Fayal.

211. *T. SUBTILIS*, Er.

Two specimens, with the preceding. It is new to the Atlantic fauna.

212. *HOMALIUM PUSILLUM*, Grav.

Two specimens only, from pines—one at Horta, and one at Santa Cruz, Flores.

213. *II. CLAVICORNE*, Woll.

Abundant in Euphorbia-stems in Flores; it is also not rare in Madeira.

*Descriptions of the New Species.*

*ANCHOMENUS APTINOIDES*, Tarn. (in Morelet, Nat. Hist. Ins. Açor. 91).

*A. elongatus, piceus, nitidus*; capite lævi, biimpresso, ore antennisque rufis; his longitudine plus dimidio corporis, articulo 2<sup>o</sup> 3<sup>o</sup> dimidio brevioribus; thorace oblongo testaceo, disco piceo, basi paullo angustato, angulis posticis rotundatis, disco sat convexo longitudinaliter impresso; elytris ovatis, convexis, fuscis, sutura marginibusque anguste rufis profunde striatis, interstitiis convexis, 3<sup>o</sup> punctis 2, uno paullo ante medium, altero apicem versus, 8<sup>o</sup> punctis plurimis impressis; corpore subtus testaceo, tarsis articulo penultimo fere bilobo. L. 12 mm.

*Hab.* Ponte Delgada, in ins. S. Miguel, semel captus in mense Junio (ex Drouet).

*BEMBIDIUM HESPERUS*, n. sp.

*B. cupreo-æneum, nitens, creberrime subtilissime ruguloso-punctulatum*; capite striis 2 juxta oculos; thorace cordato, angulis posticis rectangularibus, fovea profunda haud punctata sed rugulosa, linea discoidali vix abbreviata; elytris punctato-striatis, stria 7<sup>a</sup> obsoleta, interstitio 3<sup>o</sup> foveolis 2, una prope basin, altera ultra medium, impressis; antennis pedibusque testaceis, illis apice infuscatis. L. 1 $\frac{1}{4}$  lin.

Closely allied to *B. lætum*, Brullé, but abundantly distinct by its coloration. The reflexed margin of the elytra is of a bright copper-colour; the suture also has a tendency to be cupreous. It would seem very rare, only two examples having been captured in Terceira.

*AGABUS GODMANNI*, n. sp. (Pl. XXIII. fig. 3.)

*A. niger*; capite antice, thorace disco infuscato elytris fulvis, antennis pedibusque rufis; femoribus posticis obscuris. L. 3 $\frac{3}{4}$  lin.

♀. *Totus opacus, subtiliter denseque reticulatus.*

Black, above fulvous. Head finely reticulate; mouth, front, and two spots on the vertex fulvous. Thorax short, finely margined, very faintly reticulate, anterior margin punctated, and a few scattered punctures along the sides; fulvous with a central cloud variable in extent, but frequently leaving only the margins pale. Scu-

tellum smooth. Elytra extremely finely and slightly reticulate, having almost the appearance of a sparse punctuation, with the three series of impressed lines confused together in the posterior third. In the female both elytra and thorax are coarsely but very closely reticulated and opaque, the impressed punctures becoming invisible, and the colour deepening to dark brown. Body beneath black, margins of the segments paler. Legs and antennæ red, the femora and tibiæ sometimes infusate.

This species, in its singular disparity of sex, approaches *A. dispar*, Bold (*uliginosus*, Payk.); but this peculiarity is not always present, at least not in other species. They both (*A. dispar* and *A. congener*) have opaque females in England, though not in Sweden. *Hydaticus zonatus* varies in the same way.

TARPHIUS WOLLASTONI, n. sp. (Pl. XXIII. fig. 1.)

*T. oblongus, brunneus, granulatus, setis fulvis erectis obsitus; thorace lateribus æqualiter rotundatis, basi bisinuato; elytris distincte nodosis, antennis pedibusque rufo-piceis. L. 1¼-1½ lin.*

*Hab.* In ins. Fayal infra euphorbiam emortuam sat copiose captus.

Head strongly granulated, sides swollen and elevated. Thorax strongly granulated, sides bordered with stiff setæ and broadly flattened, towards the base somewhat contracted, in front produced, acuminate; disk uneven, with a longitudinal channel at times very well marked, but often obsolete. Elytra deeply punctate-striate and transversely rugulose, the nodules well developed and clothed with short pale setæ.

I have named this species in honour of Mr. T. V. Wollaston, in default of whose unwearied exertions our knowledge of this genus would be still confined to its solitary European representative.

ELASTRUS DOLOSUS, n. sp. (E. W. Janson *in litteris*). Pl. XXIII. fig. 8.)

*E. rufo-brunneus, nitidus, pubescens; fronte convexa, antice rotundata; antennis rufo-testaceis, articulo 3<sup>o</sup> 2<sup>o</sup> sesqui fere longiore; thorace latitudine longiore, a basi angustato, dense punctato, angulis posticis breviter unicarinatis; elytris brevibus, thorace haud sesqui longioribus, striatis, striis punctatis, interstitiis planis, parce punctulatis; pedibus rufo-testaceis. L. 3½ lin.*

Reddish brown, shining, sparsely clothed with a short yellowish-grey pubescence; head pitchy black; antennæ, legs, and anterior angles of thorax rufo-testaceous.

Mr. Janson, to whom I am indebted for the above description of this interesting species, adds that it so closely resembles certain species of *Anchastus* (*A. rufivellus*) as on a superficial inspection to be mistaken for them. He goes on, however, to say that the total absence of membranous tarsal appendages precludes its location among the *Myorhinites*.

This genus is hitherto peculiar to Madagascar; and its occurrence in the Azores is hence somewhat remarkable.



ATTALUS MINIATOCOLLIS, Tarnier (*l. c.*). (Pl. XXIII. fig. 5.)

*A. niger nitidus, parce nigro pilosus; capite piceo, bifoveolato; thorace rufo, quadrato, postice valde rotundato, paullo convexo; elytris viridibus, parce punctatis, postice dilatatis; pedibus nigris, coxis anticis rufis; antennis nigris, articulis 3 primis apice rufescentibus. L. 1 $\frac{3}{4}$  lin.*

Mas. *Antennis longitudine plus dimidio corporis.*

*Hab.* In insulis Terceira et Fayal, in floribus copiose lectus; in ins. Santa Maria (*Drouet*).

Nearly allied to the Canarian *A. ruficollis*, Woll., but distinct by its punctuation &c.

PHLEOPHAGUS VARIABILIS, n. sp.

*P. æneo-piceus; capite parce subtilius punctato, rostro substrigoso; thorace antice subtilius, postice et lateribus fortiter punctato; elytris grosse punctato-striatis, interstitiis irregulariter biseriatim punctatis. L. 1 $\frac{1}{2}$  lin.*

The above diagnosis will apply to nearly all the phases of this variable species, which may be further characterized as follows:—

Var.  $\alpha$ . Thorax finely and sparingly punctured, very shining; head extremely finely punctured; elytra with the punctures in the striæ faint. From an elder-tree near the Furnas; very rare.

Var.  $\beta$ . Thorax more coarsely punctured, but shining; elytra with the punctures more deeply impressed, glossy æneo-piceous. Very common in Euphorbia-stems in Flores and Corvo.

Var.  $\gamma$ . Thorax much more strongly punctured, especially behind, so that the interstices between the punctures no longer glisten; elytra with the striæ hardly deepened, so that the punctures stand out isolated. Smaller than the last. Abundant in old trees in S. Miguel.

Var.  $\delta$ . The extreme form in this direction, with the thorax almost scabrous, and the rostrum strigose. It is also smaller in size. In old fig-trees.

The above range of variation is paralleled in the Canarian *P. laureneus*, which under similar circumstances runs through partly the same changes. The lightly sculptured ones seem always attached to the *Euphorbiæ*. It is somewhat curious that in the allied genus *Mesites*, where some are found on laurel and some on *Euphorbiæ*, the two form distinct sections, instead of merely varieties as here.

ACALLES DROUETII, n. sp. (Pl. XXIII. fig. 4.)

*A. brunneus, squamis ochraceis densissime tectus; thorace confertim granulato, lateribus valde ampliatis carinatis, dense squamoso, linea media cinerea, nodulis 2 discoidalibus marginibusque setis erectis obsitis; elytris punctis magnis seriatim dispositis, interstitiis vage punctulatis, nodulis 2 anticis approximatis et 2 posticis maximis setis erectis vestitis, totis dense squamosis fusco varic-*

*gatis, regione apicali cinerea; pedibus dense ochraceo squamosis; rostro nudo strigoso, basi dense squamoso. L. 3-4 lin.*

*Hab.* In ins. Flores intra euphorbiam emortuam sat copiose lectus.

This very beautiful *Acalles* is one of the most striking insects here described. The singular dilatation of the sides of the thorax and the numerous erect setæ render it unmistakable. I have dedicated it to M. Drouet, to whom we are indebted for the first exploration of these islands and for a careful summary of the results of his work, including three or four new species and eight not since found.

LAPAROCERUS AZORICUS, Drouet, Col. Açor. 19. (Pl. XXIII. fig: 6.)

*L. niger, nitidus; capite fortiter punctato, fronte canaliculata; thorace parce fortiterque punctato et subtilissime fulvo pubescente, quadrato, antice paullo angustiore, lateribus rotundatis, linea media abbreviata lævi; elytris seriatim punctatis, interstitiis fortiter biseriatim scabro-punctatis, ovalibus, humeris rotundatis, sutura apice carinata, lateribus et apice pube fulva lessellatis; scutello nitido, lævi, triangulari; subtus pectore scabro, abdomine punctato, segmentibus margine rufescentibus; pedibus piceis, tarsis tibiisque fulvo ciliatis pallidioribus, femoribus inflatis; antennis piceis, parce ciliatis, clava pubescente.*

*Hab.* Sub lapidibus in ins. Fayal mense Augusto copiosissime lectus (*Drouet*); in iisdem locis in ins. S. Miguel mense Martio (*Godman*).

This fine addition to the Atlantic fauna is larger and stouter than the Madeiran forms, or even than the Canarian, and bears more the aspect of an insect fitted to live in arid places under stones than near woods. The outline is more that of the *Herpysticus eremita*, Oliv. (Canaries).

#### ASYNONYCHUS\*, n. g.

Rostrum as long as the head, subparallel, rounded at the anterior angles, submarginate in front, with a broad but shallow longitudinal impression, scrobes oblique, not reaching the eyes, badly defined. Antennæ subterminal, smooth, slender; scape a little longer than the head, abruptly clavate; funiculus with the first joint equal to the third, second twice as long as the first, joints four to six subequal, shorter than the third, seventh equal to the third; club oblong ovate, slender, acuminate, articulated. Eyes rounded, prominent. Thorax quadrate, cylindrical, truncate before and behind. Elytra ovate, base slightly emarginate, humeral angles rectangular. Legs long, especially the anterior pair; anterior femora thickened; anterior tibiæ with the inner margin strongly serrate, having about eight teeth; corbeilles of posterior tibiæ large, with their edge very strongly ciliated; tarsi broad, hairy, claws free.

\* a privative, *ασυώνυχος*, with connate claws; in allusion to these parts being free in this case.

Type *A. godmanni*, n. sp.

This genus must be placed next *Brachyderes* in the arrangement of M. Lacordaire, to which it is allied in general appearance, but is at once distinct by its free claws (very rare in the family) and its serrate anterior tibiæ.

*A. GODMANNI*, n. sp. (Pl. XXIII. fig. 9.)

*A. fusco-piceus*, *squamis rotundatis ochraceis sat dense vestitus; capite longitudinaliter canaliculato; thorace subquadrato, crebre punctato; elytris fortiter punctato-striatis, seriatim setosis; pedibus fuscis, parce squamosis, tarsis pilosis. L. 3-3½ lin.*

*Hab.* Prope Hortam in ins. Fayal, duo specimina tantum lecta.

I have named this after Mr. Godman, in recognition of his unwearied and successful attempts to increase our knowledge of the Atlantic fauna in all its branches.

#### NEOCNEMIS\*, nov. gen.

Rostrum as long as the head, angular, slightly depressed longitudinally, separated from the front by an obsolete elevation; scrobes very well marked, extending to the level of the inner margin of the eyes. Antennæ thick, pilose; scape as long as head, clavate; funiculus with the first joint longer than the second, the rest short, obconic, subequal; club short, acuminate, obsoletely articulate. Eyes very prominent, conical. Thorax quadrate, sides rounded. Elytra oblong-ovate, base subemarginate, shoulders rounded. Legs moderate, femora thickened; tibiæ sinuate before the apex, with a strong inwardly directed spine; corbeilles but little defined, edge ciliate; tarsi short, claws soldered.

Type *N. occidentalis*, n. sp.

This genus is also a member of the "Brachydérides vrais" of M. Lacordaire, and must be placed next to *Strophosomus*, which it resembles in the contour of its head; the tibial spines and almost squamose corbeilles, however, readily distinguish it from any genus in the family.

*N. OCCIDENTALIS*, n. sp. (Pl. XXIII. fig. 7.)

*N. nigra, dense griseo squamosa; capite thoraceque setis brevibus, elytris longioribus sat dense obsitis; capite linea longitudinali impressa, postice emarginato; thorace scabro, linea discoidali obsoleta; elytris fortiter punctato-striatis, squamis subalbidis tessellatis; pedibus nigris, dense squamosis, femoribus mox ante apicem annulo albedo squamoso latiore. L. 2 lin.*

*Hab.* In insula Santa Maria semel captus.

*BRUCHUS BREWERI*, n. sp.

*B. niger, pube grisea dense vestitus; thorace profunde parce punctato, canalicula basali abbreviata; elytris punctato-striatis, inter-*

\* *νός*, νέω, κνήμη, tibia, in allusion to the form of those parts being abnormal in the family.

*stitiis fortiter seriatim punctatis, albido tessellatis; pygidio rugulose punctato. L. 1½–2 lin.*

♂. *Antennis articulis 4 primis femoribusque rufis.*

♀. *Antennis pedibusque totis rufis.*

A pair of specimens, apparently male and female, were captured in Santa Maria, on some flowers, by Mr. Brewer. It does not appear to belong to any of Schönherr's species, but comes in his Section I., with the femora dentate and thorax entire. The surface, on removing the pubescence, is closely sculptured all over, as is generally the case with this genus. I have dedicated this species to Mr. Brewer, as a slight testimony to his exertions in procuring fresh contributions to the Atlantic fauna.

#### BRUCHUS AZORICUS, n. sp.

*B. niger, pube fusca dense vestitus; thorace profunde punctato, macula alba ante scutellum; elytris maculis 4 denudatis striatis sat profunde transversim rugulosis; pedibus anticis tarsisque intermediis rufis; antennis nigris, articulis 5 primis rufis. L. 1½–1¾ lin.*

♂. *Tibiæ intermediæ intus mox ante apicem dentatæ.*

This species belongs to Schönherr's second section, having the femora dentate and the sides of the thorax produced about the middle into an abrupt tooth, but does not seem to accord with any of those described in his work.

#### HELOPS AZORICUS, n. sp.

*H. rufo-piccus; capite thoraceque creberrime punctatis, hoc subtiliter marginato, quadrato lateribus rotundato, angulis anticis productis acutis, basi leviter emarginato; scutello transverso, vix punctato; elytris punctato-striatis, interstitiis crebre sed obsolete punctatis; antennis pedibusque rufis. L. 6½–7 lin.*

This species belongs to the same type as the Madeiran *H. vulcanus*, Woll., but cannot, I think, be referred to that protean species. The elytra have an abbreviated sutural stria, which is represented more or less obsoletely by a series of punctures the whole length of the suture. The male has the usual long antennæ of the genus, the joints keeping the same proportion, viz. first and second very short, third nearly twice as long as the fourth, fourth to eighth subequal, two last short, obconic, last ovate acuminate (♂), or short, obliquely truncate (♀).

#### XENOMMA MELANOCEPHALA, n. sp.

*X. rufo-piceum; capite et abdominis segmentis 2<sup>o</sup>–4<sup>m</sup> nigris, capite et thorace nitidis, vix punctulatis, hoc postice foveolato; elytris thorace dimidio brevioribus, sat fortiter granulatis; abdomine lavi, apicem versus latiore; antennis articulis transversis, ultimo maximo; pedibus pallidis. L. 1 lin.*

Nearly allied to *X. filiforme*, Woll., from the Canaries, but apparently distinct.

## STAPHYLINUS HESPERUS, n. sp.

*S. ater, ænescens, pube fusca sat dense vestitus; capite crebre punctato; thorace creberrime subtiliter æqualiter punctato, subtiliter marginato; scutello dense piceo tomentoso; elytris thorace dimidio brevioribus, crebre sat fortiter rugulosis; abdomine sat crebre punctato, segmentis 2<sup>o</sup>-4<sup>m</sup> macula aureo tomentosa basali; pedibus piceis, geniculis tarsisque rufescentibus, tibiis anticis aureo ciliatis; antennis piceis, articulo ultimo rufo. L. 6-7 lin.*

*Hab.* Sub lapidibus prope Angram in ins. Terceira sat copiose lectus.

## EXPLANATION OF PLATE XXIII.

- Fig. 1. *Tarphius wollastoni*, n. sp., p. 386.
2. *Heteroderes azoricus*, Tarn., p. 375.
3. *Agabus godmanni*, n. sp., p. 385.
4. *Acalles drouetii*, n. sp., p. 387.
5. *Attalus miniatocollis*, Tarn., p. 387.
6. *Laparocerus azoricus*, Drouet, p. 388.
7. *Neocnemis occidentalis*, n. sp., p. 389.
8. *Elastrus dolosus*, n. sp., p. 386.
9. *Asynonychus godmanni*, n. sp., p. 389.

April 11, 1867.

Dr. J. E. Gray, F.R.S., V.P., in the Chair.

Mr. P. L. Sclater stated that the living Lyre-bird (*Menura superba*) alluded to by Dr. Bennett in his communication to the Society on this subject in March last year\* had safely arrived in this country a few days since in the ship 'La Hogue,' under the care of Mr. Ross, its proprietor, by whom it had been deposited in the Society's Gardens. From the statements in Dr. Bennett's letter it would appear that this bird was now about two years and seven months old†.

Mr. Sclater also reported the birth in the Society's Menagerie on the 17th ult. of a young male Giraffe, being the *sixteenth* that had been bred in the Society's Gardens. The event was of more than usual importance, as the fire of the 6th of November last, and the subsequent death of the adult male (aged 21 years) on the 22nd of January, had reduced the Society's stock to a single female. Mr. Sclater laid before the Meeting the following list of the Giraffes that

\* See P. Z. S. 1866, p. 167.

† This bird has since been purchased for the Society's collection.—P. L. S.